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A MANAGEMENT CONTROL SYSTEM FOR PLANNING AND EVALUATION OF CONSTRUCTION GRANTS

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A MANAGEMENT CONTROL SYSTEM FOR PLANNING AND EVALUATION OF CONSTRUCTION GRANTS

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MIDDLE ATLANTIC REGION
CHARLOTTESVILLE, VIRGINIA
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A MANAGEMENT CONTROL SYSTEM FOR PLANNING AND EVALUATION OF CONSTRUCTION GRANTS

R. E. BUNCE & T. RODEFFER

I. SYSTEM

I-a. SYSTEM OBJECTIVES

The major objective of this system was to produce management reports for the Planning and Evaluation of Construction Grants Branch, in order that they may control and direct this activity more efficiently. In meeting this major objective, a secondary requirement consisted of minimizing the data input effort by this branch. To meet this requirement the great bulk of work required to produce the management reports was carried out by the computer, and minimal input data preparation was adhered to.

I-b. BRANCH COMMUNICATION NETWORK

The direction and control of construction grants as they pass through the Planning and Evaluation of Construction Grants Branch may best be described by viewing the process in terms of a general queuing system. Queuing systems contain three characteristics. The input process, the queue discipline, and the service mechanism. For each characteristic a number of possible combinations can exist. The input process, in our case, grants arriving from the Construction Grants Branch may be either predetermined or random. These would be the extreme assumptions with regard to the input. Normally, the pattern of arrivals into a queuing system may be viewed as a probability distribution of time between successive arrival events

and the number of grants that appear at each event. In order to accurately determine this the input process would have to be well defined. Rather than studying this process in great detail the assumption was made that the arrivals would be random. The Planning and Evaluation of Construction Grants Branch can exercise little or no control with respect to the input process. It can however watch the process and employ this information in eventually determining when the planning grants service mechanism will begin to break down or cause excessive delays. This will be discussed in detail later on.

The queue discipline is a characteristic that describes the order in which the grants entering the system are eventually serviced. In the early stages the Branch employed servicing on a first-come first-serve basis. Though this is still the case, by and large, the actual servicing mechanism is dependent on certain outside factors.

A part of the service mechanism within the Branch may be viewed from a macro level by referring to Figure 1. This figure represents the Branch's communication network employed in satisfying their portion of the Title 18 requirements. The circles on the figure represent those Regional branches involved either directly or indirectly in supplying the necessary information required by the Planning and Evaluation of Construction Grants Branch.

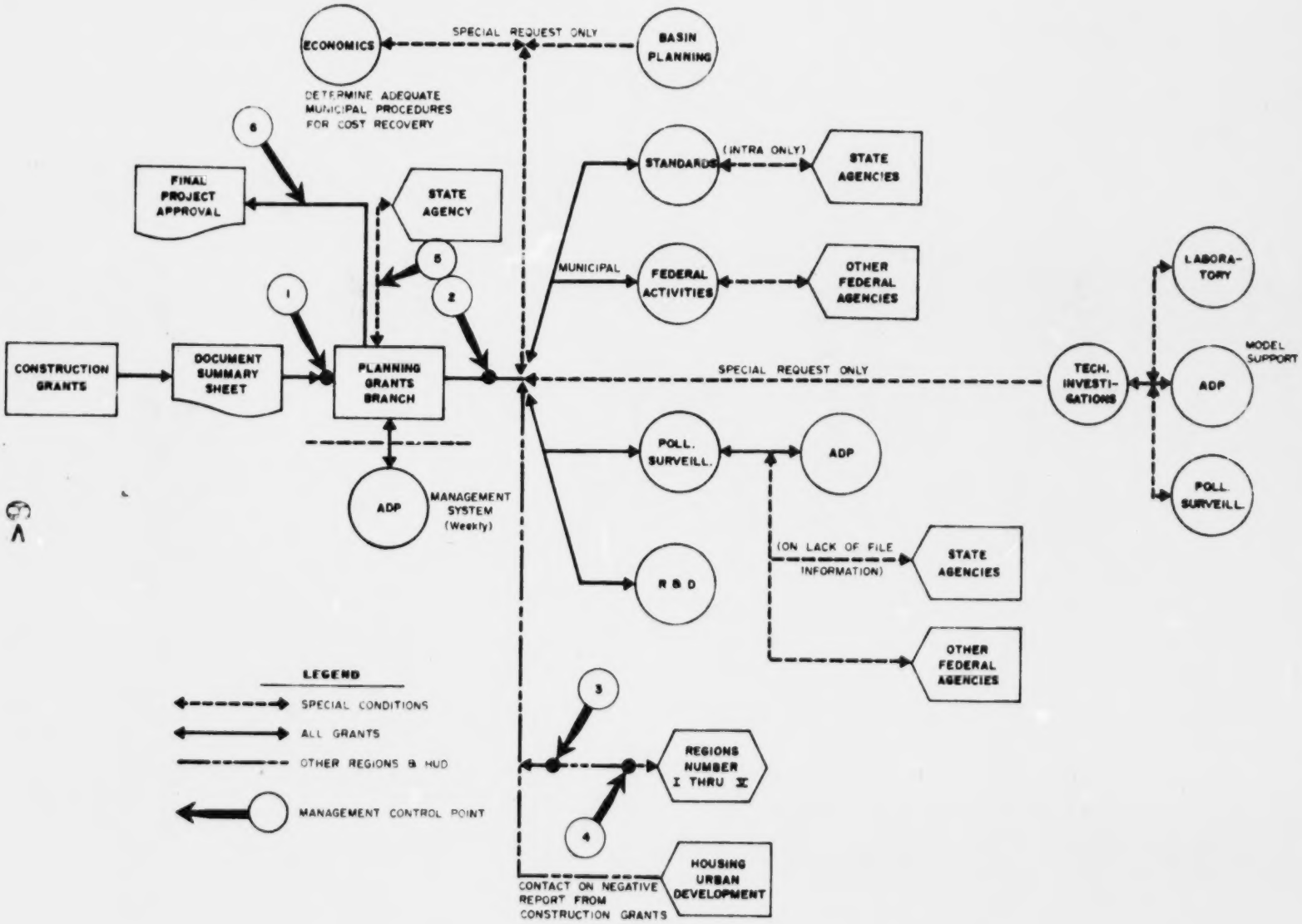

FIGURE-1 COMMUNICATION DIAGRAM FOR PLANNING GRANTS REVIEW BRANCH. (PROJECT REVIEW)

The Planning and Evaluation of Construction Grants Branch is a decision center. All other branches make few decisions or have any direct impact on the approval or disapproval of the grant. The other branches, in effect, operate as sources or pools of supply of information to meet the requirements of Planing Grants. Because this Branch is a decision center it creates a work load on other branches in direct proportion to its own work load. For this reason, it is extremely important that an adequate control system be continuously monitored.

Figure 1 shows the present communication structure or pattern for meeting the Planning Grants Branch information requirements. The structure was not planned but more or less evolved over the past several months. Ideally, the system for meeting the Planning Grants Branch requirements should be structured so that both Basin Planning and Technical Investigations would play a major role rather than a subordinate special request option as shown. If every area within the Region had Regional plans available and model study alternates within the Regional areas completed, then the entire communication structure would be completely different. As it presently stands the Planning Grants Branch is required to synthesize the input information from other branches in order to meet the Title 18 requirements.

At the present time two branches supplying the Planning Grants Branch with feedback on a high recurring frequency are the Standards Branch and the Surveillance Branch. Federal Activities and Research

and Development feedback is at a minimum and communications to these branches with subsequent feedback is effected to consider the exceptions rather than normal application handling requirements. In the overall process the communications with these two branches are more or less designed to coordinate activities and the impact to Planning Grants from their feedback is minimal.

I-c. CONTROL SYSTEMS

Control systems are designed to measure current performance and direct the future performance toward a predetermined objective or goal. The objective of any control system lies in the ability to check existing actions in light of the desired results. The results are originally determined in the planning process. Generally, control systems contain the following elements:

1. A predetermined objective, goal or standard.
2. A quantitative method for measuring current activity.
3. A means of comparing current activity with set criteria.
4. A direction for controlling events to achieve the desired results.

The desired overall objective of this control system was to allow the Planning Grants Branch Manager to expedite the application review process and provide a timely response to the applicant. This basis or attempt to predict the future events provides the basis for interpreting the meaning of events when they occur. This system provides a means by which activities may be directed more adequately in order to reach the desired objective.

The measurement element involved in control systems is generally the most costly. When operating with limited resources to carry out the main requirements imposed upon an activity it becomes exceedingly important to restrict the number of measurements and simplify the data collection technique. A balance between too much data and too little data must be weighed in the light of cost and the system's objective. Too much data tends to produce over control and too little data may fail to supply the desired control.

In this system, six control points were selected, these are discussed under a later section. The number of applications handled by the Branch requires a prompt reporting system and this increases the value of a control system while data processing increases the speed of reporting the data.

Variations in activity are indicated by comparison of the criterion with the actual performance. This is a key step in bringing meaning to the data. Generally, some variation is allowed or expected in such an activity as processing a grant application. The critical question for the Branch Manager is the determination of what is acceptable variation. In our case here, the variation hinges on time and the question resolves itself into what is significant or worthy of the manager's attention with respect to processing the application through its various stages.

Ideally, in order to compare current activity, a criteria must be established for comparison. Such criteria usually exists

as time intervals, ratios or trends. This criteria adds meaning to the current data collected about the activity. Though criteria is normally established in advance it is not always necessary to do so and there may be circumstances that actually exist that do not allow criteria to be preestablished. Under conditions when a process is well known criteria is easily selected. In our case, little is known regarding the actual time elements, and the criteria employed is based on more or less intuitive knowledge of resources and time required to synthesize existing data. As time progresses and historical information becomes available it is expected that better criteria will be selected and exception reporting will be instituted.

In addition to the normal comparison of current activities against established criteria a good control system will allow the manager to predict future problems. The control system for the processing of grant applications involves the manager to make decisions. This element listed as number 4 above is the feedback from the control system to the process being controlled. This fourth element involving a decision not to take any action, if the performance is "under control" completed the entire control system cycle.

In utilizing the system the manager is faced with only two possible errors. The first error is the taking of action when no action is required. The second error would be to fail to

take action when correction is required. The success or failure of the system hinges on whether corrective action is taken at the proper time.

I-d. MANAGEMENT CONTROL POINTS

The nature of the project review by Planning requires the Planning Branch to rely heavily upon other activities. Since these activities are outside of the Branch Manager's direct control a project review could fall behind schedule if the other branches did not reply within a given time frame. In addition, the Branch Manager exercises extremely limited control when a project is transmitted to another Region. The net effect places his activity at the mercy of other branches and at times other regions, which may at certain points in time have higher priorities than answering the Planning Grants request. In order for the Planning Grants Manager to control the flow of project reviews through his Branch it is necessary for him to maintain a system for adequately determining the status of each project under his supervision.

At the present time six control points have been selected and are listed as follows:

1. Project Received
2. Intraregional Coordination Complete
3. Project Sent to Other Regions
4. Comments Received from other Regions

5. Additional Information Requested from State

6. Final Action

These points are shown on Figure 1. The first point is actuated when the application is received by the Branch. In addition to other information recorded at this point the date of receipt of the application is entered. At this time notification and information is requested from Standards, Federal Activities, Surveillance and Research & Development. Under certain special conditions other activities would also be notified. Each branch is requested to submit information within 14 days from receipt of the request.

The second control point is used when all intraregional coordination is completed. Information on the application has been received by Planning from all other branches where a request was made.

Control points 3 and 4 are only used for those applications that fall outside of the Regional boundary. When an application such as this is transmitted to another Region control point 3 is employed. When the information is returned from the other Region control point 4 is employed. Under these conditions the Planning Grants Branch Manager loses all control over the application. The Region receiving such a grant application would process it through their own procedures.

Control point 5 is used when additional information is requested from the State. This point is actuated after all other sources of information have been received by the Branch. In the event internal

sources are not sufficient the Branch would request the State to supply required data.

Control point 6 indicates that all processes are completed and a letter transmitted that indicates final approval.

I-e. SYSTEM DISCUSSION

As mentioned previously, a major problem in designing control systems is the collection of input data. The amount of work required to collect and properly maintain a system must be weighed against the benefits derived by the Manager for expending such an effort. Therefore, the data must be relevant, timely and tied directly to the decision making area within which the Manager operates.

The input data required for this system may be seen by referring to Figure 2. The Branch Manager is supplied with a number of these forms printed in check book fashion. The entire operation for entering the data consists of first deciding whether the entries should be made for either a new project (Grant Application) initiation or a status change on a project already in the system.

The left-hand side of the form shows the data entry for all new projects as they are initiated by the Planning Grants Branch. The data entry is seen to consist of:

1. Project Number
2. Project Title
3. County Name
4. Date Received

CASE STATUS - MANAGEMENT INFORMATION SYSTEM
PLANNING FOR CONSTRUCTION GRANTS

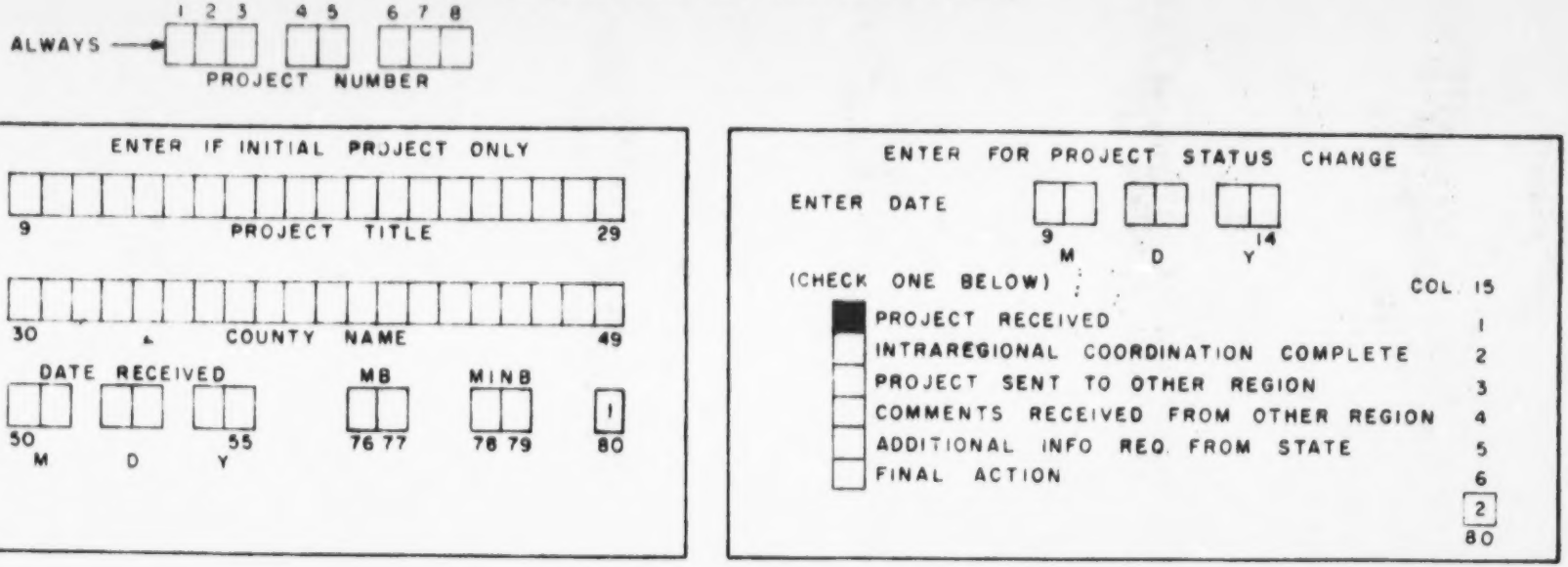

FIGURE – 2 FORM REQUIRED FOR SYSTEM OPERATIONS (Input Data Supplied Weekly By Planning Grants Review Branch).

5. Major Basin Number

6. Minor Basin Number

The right-hand side consists of data entry for project status changes. Data required for this are:

1. Project Number

2. Status Change Date

3. Status Change (checked)

The check book is maintained on a daily basis and at the end of each week the forms are transmitted to the ADP Branch by 9 a.m. on Friday. The data is punched and verified and computer programs employed to maintain the disk files and produce required output reports. The reports are returned to the Branch Manager by noon on Friday and from these reports strategy for the coming weeks operations are developed and orders issued to the Branch's staff.

I-f. REPORT OUTPUT

Figure 3 shows the input-output from the control system. The weekly input documents, discussed in the previous section, are key-punched and verified. The initial computer output shown as number 1 on the figure is not actually a management report. This output produced a listing of the weekly input transactions and a card error listing. The card errors and edit list are discussed under the file handling section of this report.

The first management output report shows each project being processed by the Branch. This report is a project historical status evaluation. The status events occurring for each project are shown as a function of time. All projects are listed by State.

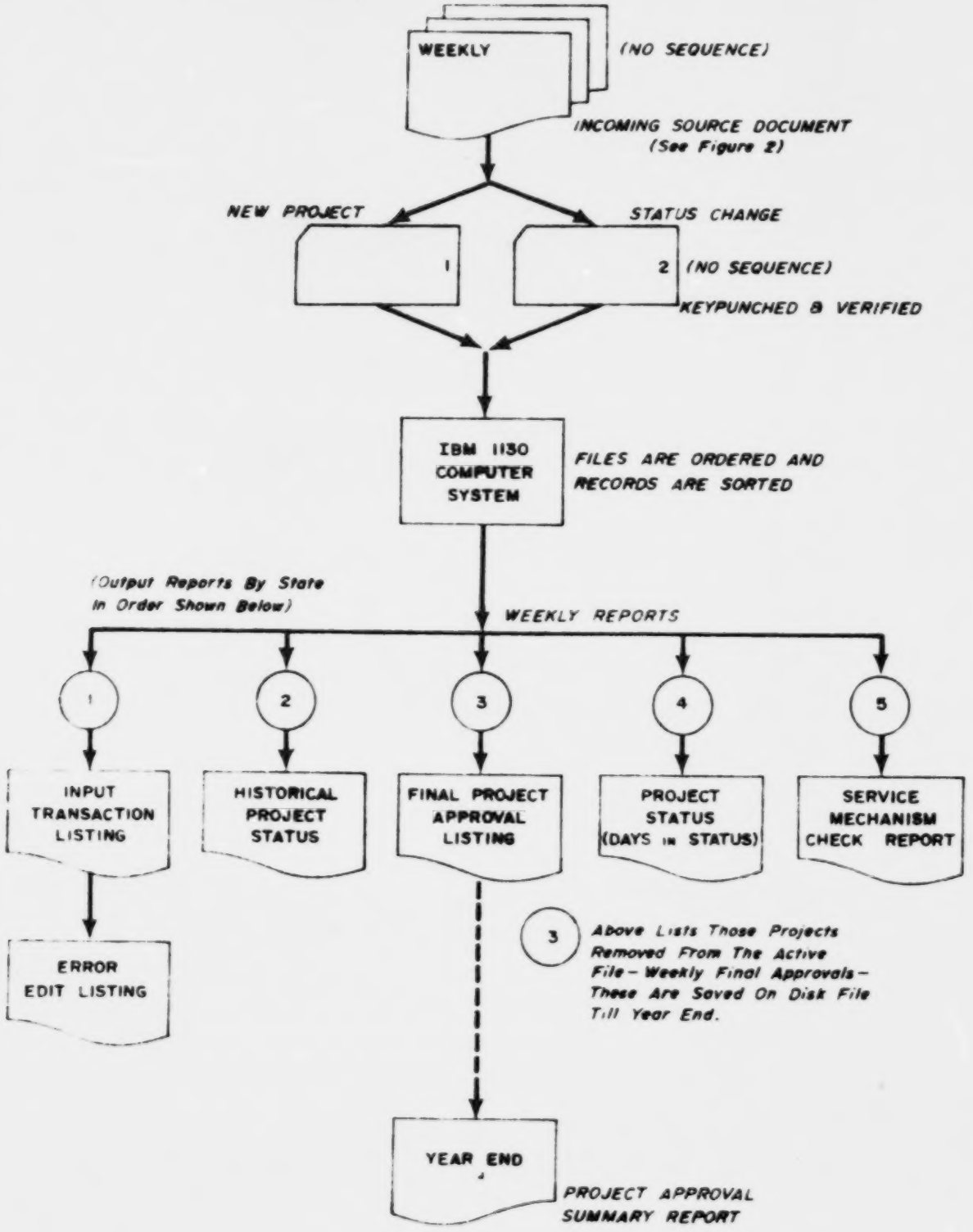

FIGURE - 3 INPUT-OUTPUT DIAGRAM FOR THE MANAGEMENT CONTROL SYSTEM

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The second output report produced those projects that fall under a particular status. All projects under status 1 are listed by State. Each project is shown and the number of days in the particular status is shown at the left of each project. The number of days in status is computed from the date the project entered the status to the date of the current report. Following status 1 projects are the status 2, 3 etc., including status 5. It should be noted that status 6 projects, final approvals for the week, have been removed from the file and saved for a final year end management summary report.

The third output report lists the total number of projects that entered the system for the week and the total number of projects that were in the final approval status during the week. The report maintains the totals from previous weeks and is designed to produce a time history. The major purpose of this report is the determination of how successful the servicing mechanism within the Branch actually is. A careful review of the report aids the Manager in rapidly detecting future problems in grant processing. Whenever the rate of arrivals exceeds the outgoing final approval rate the service mechanism will be in trouble.

I-g. FILE HANDLING

On Figure 2 the input document is differentiated to be a "1" punch or a "2" punch in card column 80. The "1" punch indicates a new or initial project card. The "2" punch indicates a status change card.

For initiating the system, console sense switch 1 located on the IBM 1130 is turned on. The use of this switch is to instruct the computer that the initial project card data from cards with a "1" punch are to begin a file creation on the disk. This switch is used by the program to determine the location of the first record to be written on the disk. All data entering from "1" punch cards is loaded on the disk to create the master disk file. Cards with a "2" punch are employed to create a general work file.

After the initial system start above, it is no longer necessary to use the sense switch and it should be placed in the off position for all computer runs after the initial file creation. Subsequent computer runs load "1" punch card data directly behind the initial master file. These subsequent computer runs begin this record loading at the current end of the master file. The work file is destroyed with each new computer run.

After adding the current new project records to the master file and creating the work file both files are sorted on the project number. The program then sequentially processes the status changes from the work file into the master file. At the completion of the master file updating, the program sorts the master file by State. From this current sorted and updated master file the management reports are printed.

FILE LAYOUTS

File Name	Field	Length in Words	Format
1. Grant Master File 250 records/106 words per record	Project Number	8 (1-8)	Al
	Project Title	21 (9-29)	Al
	County Name	20 (30-49)	Al
	Major Basin Code	2 (50-51)	Al
	Minor Basin Code	2 (52-53)	Al
	Status 1 Indicator	1 (54)	Al
	Date of Status 1	6 (55-60)	Al
	Status 2 Indicator	1 (61)	Al
	Date of Status 2	6 (62-69)	Al
	Status 3 Indicator	1 (68)	Al
	Date of Status 3	6 (69-74)	Al
	Status 4 Indicator	1 (75)	Al
	Date of Status 4	6 (76-81)	Al
	Status 5 Indicator	1 (82)	Al
	Date of Status 5	6 (83-88)	Al
	Status 6 Indicator	1 (89)	Al
	Date of Status 6	6 (90-95)	Al
	* Words 96 - 106 are blank		
2. Year End Summary of Final Approvals	Same format as the master file, same number of records and number of words/record.		
3. Time History File 27 records/12 words per record	Date of Wkly Rpt	6 (1-6)	Al
	No. of New Projects	1 (7)	Integer
	No. of Final Approvals	1 (8)	Integer
	* Words 9 - 12 are blank		

I-h. COMPUTATIONAL PROCEDURE FOR DAYS IN STATUS

An interesting problem arises whenever the time interval between two calendar days is to be computed. If the time interval is to be recorded within any one year the problem is less tedious than those time intervals computed across year boundaries. Leap years add an additional logical step in the computation.

In 46 B.C. Julius Caesar introduced the Julian calendar. This calendar provides 365 days for each year and every four years were considered a leap year with 366 days. In 1582 Pope Gregory XIII corrected a slight error in the Julian calendar by dropping 10 days. In order to prevent future errors he provided for a leap year whenever a centesimal year was divisible by 400. Normal leap years were divisible by 4. The exact leap year day being taken up in February.

In the computer programs employed here the Julian calendar is used. The algorithum presented does not include leap year logic though a minor addition would be required to do this. The interval of time is not considered critical enough to warrant the inclusion, since a one day error would be permissible.

ALGORITHUM FOR THE COMPUTATION OF DAYS IN STATUS

We let:

I_c	Current Report Date (month)
J_c	Current Report Date (day)
K_c	Current Report Date (year)
I_s	Status Date (month)
J_s	Status Date (day)
K_s	Status Date (year)
$C(I_c,J_c,K_c)$	Current Report Date
$S(I_c,J_c,K_c)$	Status Date
ΔD	Delta increment in days
T_m	Total number of days in mth month

Now, whenever $K_c = K_s$ and $I_c = I_s$

we have $\Delta D = [C(J_c) - S(J_c)] + 1$

If, however $I_c > I_s$, then test to see if $I_c = I_s + 1$

if this is true, then

$$\Delta D = \{[T_{I_s} - S(J_s)] + 1\} + C(J_c) \qquad (1)$$

if $I_c \neq I_s + 1$, then

$$\Delta D = (1)(\text{above}) + \sum_{M=I_s+1}^{M=I_c-1} T_M$$

Now, consider the case when $K_c > K_s$

then, we test to see if $I_s < 12$, if this is true

$$\text{then } \Delta D_{K_s} = \{[T_{I_s} - S(J_s)] + 1\} + \sum_{M=I_s+1}^{M=12} T_M \qquad (2)$$

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(2) above is computed as the interval of the year left for status, note ΔD_{K_s}, if I_s is not less than 12 then ΔD_{K_s} is

computed as:

(3)

$$\Delta D_{K_s} = \{[T_{12} - S(J_s)]+1\}$$

Now, we compute ΔD_{K_c}, first test to see if $I_c>1$,

if true, then: (4)

$$\Delta D_{K_c} = \sum_{M=1}^{M=I_c-1} T_M + C(J_c)$$

if false, then: (5)

$$\Delta D_{K_c} = C(J_c)$$

Now, obviously

$$\Delta D = \Delta D_{K_s} + \Delta D_{K_c}$$

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II. PROGRAMS (ABSTRACT, INPUT, OUTPUT, PROGRAM PROCESSING AND OPTIONS.)

II-a. CASE STATUS HISTORY PROGRAM (P4101)

Abstract

This program builds the initial Grant Master File, subsequently adds new projects and updates the status of old ones, and builds the Time History File. This file is a record of the number of new projects entering the system and the number of projects given final approval each week, kept for the most recent 26 weeks of the year. The program also prints the Case Status History Report as the first segment of the weekly Management Information Reports.

Input

A. Card

1. Initial Project Cards ('1' in cc 80)
2. Status Change Cards ('2' in cc 80)

B. Disk

1. Grant Master File (input Case Status Report)

Output

A. 1132 Printer

1. Error Listing
2. Grant Case Status Report

B. Disk

1. Updated Grant Master File
2. Updated Time History File

Program Processing

A. Preliminary Processing

1. Read and check date card, provide for resubmission by operator if incorrect without necessity of reloading the program.

2. Set up Data Switch option to build file initially and handle subsequent file additions.

B. Data Input Phase

1. Read input cards and separate into initial projects and project status changes.

a. List the input cards (80-80) on the 1132 printer.

2. Add the initial projects into the back of the Project Master File and write the status changes on a work file in 80 A1 format.

3. While reading the input data, check for an invalid code in Column 80 (it must be '1' or '2'), select the error card in stacker 2 and continue processing.

4. If the input card is an initial project; check it against the current Master File to see if it is already on the file. If it is, print an error message on the 1132 printer and continue to process the input cards.

5. Count the number of new projects coming in and store the count for future use.

C. Master File Update Phase

1. Sort both the work file and Master File on project number.

2. Process the detail file sequentially against the Master File printing out a "No - match" error message on the 1132 printer when the Master File goes high.

3. On an equal compare, test the status code to determine action to be taken.

4. If the status code is a '1', print an error message to the effect that this is unacceptable (on the 1132 printer) and read the next status change record.

5. If the status is a '6', then count the number of these final approvals and store for future use in the program.

6. For each valid code (2 - 6), move the status code and status date to the output array, and go to write the updated master record back on disk. (See disk file layouts.)

D. Print Phase

1. Sort the Grant Master File by State - (positions 4 - 5 in project number).

2. Print the Case Status Report according to the Printer Spacing Chart, skipping to a new page on a change in State code, from the sorted Grant Master File.

3. Re-sort the Master File in Project Number Sequence.

E. End of Job Phase

1. Skip to a new page and print the total number of new projects and total number of project approvals (status 6) for the week.

2. Write the above information, along with the date of the report, on the Time History File. (See file layouts.)

3. Provide a Data Switch Option to build this file initially and include a warning message to the operator about the use of this switch.

4. In addition, test the Time History File for its maximum number of records (26), and, if it is full, drop off the first (oldest) date and data and write the current week's records in, and approvals out on the 26th record of the file.

5. Skip to a new page and STOP.

Options

A. Provide an option, using a Data Switch, to update the Master File and Time History File, but suppress the Case Status History Report.

B. Provide an option to print the History Report only (in order by State), using a Data Switch.

II-b. RECORD SELECT FOR YEAR END SUMMARY (P4103)

Abstract

This program's main purpose is to search the Grants Master File for any projects which have been given final approval (status 6), select these records, and write them on a permanent disk file for purposes of year end summarization and analysis. It also prints a report of the projects removed for the week.

Input

A. Disk

1. Grants Master File (F4101).

Output

A. 1132 Printer

1. Listing of Final Approvals removed by State.

B. Disk

1. Work File of Records not selected (i.e., status 1-5) File No. 3.

2. Work File from which status 6 records stripped are sorted and printed. (File No. 4)

3. Year End Summary File of selected final approvals. (File No. 2 F4102)

4. Re-packed Grants Master File after all final approvals for the week have been removed. (File No. 1)

* Note: All of the above files are in the same format as the Grants Master File. Files number 1 and 2 are permanent.

Program Processing

A. Preliminary

1. Read and check for date card. Provide operator with option to reload the card if incorrect, without reloading the program.

2. Set up a Data Switch option to handle the original file build of the Year-End Summary File. Include a warning message to the operator as the option should be in effect once only.

B. Selection Phase for Final Approvals

1. Read the Grants Master File and test for a status '6' in the appropriate position and write the 6 record on both the work print file and the Year End Summary File.

2. If the record is not a status 6, then write it on the temporary work file to be used in re-packing the Master File.

3. Test the Year End Summary File to determine whether it is within 25 or less records of its capacity and if so, print a message to the operator on the 1132 printer to this effect and instruct him to notify the programmer. Continue processing after printing this message.

C. Print Phase

1. Sort the work file containing the final approvals for the week on State (positions 4 and 5 of project number) and print the Projects Removed Report according to print layout specifications.

2. Total the number of projects removed for each State and carry an overall total of projects removed. Skip to a new page on a control break on State.

D. End of Job Routines

1. At the end of the Projects Removed report, skip to a new page and print the total number of projects removed to the Year End Summary file.

2. Re-pack the remaining projects in the Master File by simply copying the work file of non-status 6 projects back onto the beginning of the Grants Master File.

3. Skip to a new page and print control totals for the number of records on the Master File at the beginning of the run,

the total number of records removed to the Year End Summary file, and the number of records remaining on the Master File.

4. Skip to a new page and STOP.

Options

No options are required except to provide for the initial weekly run of final approval removals to the Year End Summary file.

INTERNAL SWITCHES

Name	Purpose
1. LR	Used for last record indicator in printing the Projects Removed Report
2. IOFLO	Used in Computed Go To for exit from Page Overflow Routine

II-c. DAYS IN STATUS REPORT PROGRAM (P4102)

Abstract

This program groups all records on the Grants Master File according to the most recent status of the project, computes the number of days each project has been in that particular status (from the date of the run), and prints a report, by status code, presenting this information.

Input

A. Disk

1. Grants Master File (F4101)

B. Card

1. (Optional) Deck of all Dates in the Year (mo/day)

Output

A. 1132 Printer

1. Project Days in Status Report

B. Disk

1. Work Files - 1,2,3,4,5,6 - one for each status (see status work file layout).

Program Processing

A. Preliminary Steps

1. Read and check for a date card. Provide for reloading the date card without the necessity of reloading the program - after printing an error message to the operator.

2. If the option to use a Julian Date table rather than an algorithm to compute it is chosen, read in the deck of dates for the year (mo/da) and compute the Julian Date for each corresponding day of the year.

B. Status Selection Phase

1. Read the Grants Master File and determine the latest status of the project.

2. Select the project and write it on the work file for the appropriate status. (Theoretically there should be no status 6's as they will have been removed by the time this program is run. However, a routine to handle status 6's should be included anyway.)

C. Days in Status Calculation

1. Go through each status work file in turn, reading each record and calculating the number of days in status for each project. Write the calculated days in status on the disk record.

2. To calculate the number of days in status, use Julian dates. Either calculate the Julian Date via the algorithm outlined in the System documentation, or look it up through use of a Julian Date table.

D. Files Sort and Report Printing Phase

1. After phase C above, sort each of the work files by State (positions 4-5 of project number, positions 5-6 of the disk record).

2. Print each file separately beginning with file 1 and continuing through 6, breaking control and skipping to a new page on State, in accordance with the print layout specifications.

3. Be certain to check for the possible lack of records on any work file and do not sort or print anything for any status file which has no records.

4. At End of Job, skip to a new page and STOP.

Days in Status Calculation

1. Do not program for the event that the current status date is two years or more higher than the disk status date, as a project would never be likely to remain in status for this length of time.

2. Also, leap-years need not be considered in the Julian date or calculation of days in status as the exact number of days in status is not of paramount importance.

3. Make this calculation a closed subroutine.

Options

No options need be provided at this program definition date.

WORK FILE LAYOUT FOR EACH STATUS

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(6 Files - 250 records, 80 words ea.)

Field	Length in words		Format
STATUS Code (1,2,3,4,5 or 6)	1	(1)	A1
Project Number	8	(2-9)	A1
Project Title	11 (packed)	(10-20)	A2
County Name	10 (packed)	(21-30)	A2
STATUS Codes and STATUS Dates (1 - 6)	1	(31)	A1
'1'	6	(32-37)	A1
	1	(38)	A1
'2'	6	(39-44)	A1
	1	(45)	A1
'3'	6	(46-51)	A1
	1	(52)	A1
'4'	6	(53-58)	A1
	1	(59)	A1
'5'	6	(60-65)	A1
	1	(66)	A1
'6'	6	(67-72)	A1
No. of Days in Status	1	(73)	Integer

Total 73 words

Words 74 - 80 are blank

INTERNAL SWITCHES - P4102

Name	Purpose
1. IND	Used to exit from the closed Subroutine which calculates the days in status for a project (computed Go To)
2. IOFLO	Used in Computed Go To to exit from Page Overflow subroutine.

II-d. TIME HISTORY OF SERVICE MECHANISM (P4105)

Abstract

This program prints a chronological record of up to 26 weeks of the number of new projects received and the number of final approvals each week as a management tool to determine if the service mechanism of the grants system is performing satisfactorily. A trend indicating more new projects in than receiving final approval would indicate malfunctioning of the system.

Input

A. Disk

1. Time History File

Output

A. 1132 Printer

1. Time History Report by week, oldest date first.

Program Processing

1. Read and check the date card. If incorrect, print an error message on the 1132 printer and provide for card re-entry without program reloading.

2. Print the Page Heading according to the Print Layout Chart. There should be no need for a page overflow routine as only 26 records will be printed.

3. Read a Time History File record and print it according to the Print Layout Chart.

4. After the last record has been printed, skip to a new page and STOP.

* Note: The Time History File is created, one record per week, by program P4101, the Case Status History program, and is repacked upon reaching 26 records (weeks) each week thereafter by dropping the oldest report date and record counts (record 1) and adding the current data to the last record in the file (record 26).

Options

None at present.

II-e. GRANT MASTER FILE MAINTENANCE (P4104)

Abstract

This program provides for the maintenance of the Grants Master File insofar as changing or blanking permanent file fields and deleting entire project records are concerned. Other file changes must be accomplished through use of other System programs.

Input

A. Card

1. File Change Cards - 'C' in cc 80

2. File Delete Cards - 'D' in cc 80 - See Card Layouts

B. Disk

1. Grants Master File (F4101)

Output

A. 1132 Printer

1. Listing of original data and new (changed) data and projects deleted.

B. Console Typewriter

1. Error messages

C. Card Stacker

1. Cards with neither 'C' nor 'D' in column 80

D. Disk

Updated Grants Master File

Program Processing

A. Preliminary

1. Read and check for date card. If incorrect or missing, print error message to operator on 1132 printer and provide for re-entry of card without reloading program.

B. Input Phase

1. Read an input card and determine whether it is a 'delete' or a 'change' card.

2. If neither, select the card in stacker 2 and continue to read input.

3. If the card is a 'change' card ('C' in 80) write on disk in 80 A1 format in a work file, and continue until all cards have been read. Since input is grouped by changes and deletes, all of the other input cards should be change cards.

4. If the cards are 'deletes' ('D' in 80) see Section D on Deletes below.

C. Processing Changes

1. Program the computer to change or blank these five permanent fields:

a. Project Description
b. County Name
c. Major Basin Code
d. Minor Basin Code
e. Date of Status 1

2. Sort the work file of changes on Project Number.

3. Sequentially process the changes - detail file against master, printing an error message on the Console Typewriter if the project number of a change does not match the Grants Master File.

4. If the change record is equal to the Master File record, step through each field - changing, by-passing or blanking each field as required.

5. If a field is blank on the change record, leave it as is on the master record, if it contains anything but a $ in the high-order position, replace the old field with the field in the change record. If the high-order of the change field contains a dollar sign ($). blank that field on the master record.

6. Make a provision to ensure that all change cards indeed have at least one change or blanking function contained in them and print an error message on the Console Typewriter if they do not.

7. After processing a change record, write the old and new data on the 1132 printer according to the printer spacing chart and write the updated Grant Master Record back on disk.

8. At the end of the input records, print control totals for the number of records on the file at the beginning of the run, the number of records deleted, and the number of records on the Master File at the end of the run. Print this on a new page on the 1132 printer, skip to a new page and STOP.

D. Processing Project Deletions

1. Process deletions one at a time as programming will be less complex and low deletion volumes will result in little, if any, wasted time.

2. Print the record to be deleted on the 1132 printer.

3. Read through the Grants Master File until the delete card project number matches the Master File, then simply shift all records one record to the left until the remainder of the file is repacked.

4. If the delete card does not match the Master File, print the card and an error message to that effect on the Console Typewriter and continue processing.

5. If the record to be deleted is the last record on the file, simply drop it and avoid repacking.

6. Process each delete card similarly until the last card has been processed. Then follow the procedure outlined in Section C 8 above.

INTERNAL SWITCHES

Name	Purpose
1. ISW	Used in the Delete portion of the program to indicate that a file deletion has occurred and that each record must be read one ahead and written one behind.
2. IDIND	Used to branch to the End of Job routines in the case of a deletion run. Set on by the detection of a delete card in the input.
3. IND	Used to determine the presence of such data. If on an error condition exists.

III. OPERATING INSTRUCTIONS

III-a. OPERATING PROCEDURES

Weekly

A. Key-punch weekly initial project cards and status change cards.

B. Key-punch any file maintenance cards.

C. Separate maintenance (if any) by Changes and Deletes and run decks separately using program P4104.

D. After the master file maintenance run, or if there is no maintenance for the week, run the Case Status History Report using P4101.

1. Be certain to check stacker 2 for any input cards which may have had an invalid code in column 80. (Return these cards to Basin Planning with printed reports.)

E. Run program P4103 to strip out final approvals from the Master File. Omit this step if there are no final approvals.

F. Run program P4102 to print the Project Days in Status Report.

G. Run program P4105 to print the Time History Report.

H. Dump the Files F4102 and F4103 to cards using DUP Dump-data Function. This concludes the weekly runs for the system. Release all output and error listings to Planning & Evaluation Branch.

Monthly - No Reports

Quarterly - No Reports

Annually - Statistical Reports as required from final approval file.

III-b. INDIVIDUAL PROGRAM OPERATION INSTRUCTIONS FOR

IBM 1130 SYSTEM

Program Name: P4105

Program Function: Print Time History Report as Service Mechanism

Program Type: DSF - Disk Cart 0005

Input: Time History File

Output: Time History Report - 1132 printer - 2 pt. wide stock

Execution Prodedure: Job, XEQ, Files Cd, Date Cd (DTE of Report cc 1-8, i.e., 09/27/70)

Options: None

PROGRAMMED PAUSES

ACCUM (HEX)	MEANING	OPERATOR ACTION
1111	Date Cd Incorrect or missing	Correct, press prog. start to continue
9999	End of Job	Press Prog. start to exit to monitor

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Program Name: P4102

Program Function: Print Grant Days in Status Report

Program Type: DSF - Disk Cart 0005

Input: Grant Status Master File

Output: Days in Status Report - 11" stock (2 part wide)

Execution Prodedure: Job, XEQ, Files Cd, Date Cd, (Date of report, i.e., 08/12/70), Julian Table Deck

Options: None

PROGRAMMED PAUSES

ACCUM (HEX)	MEANING	OPERATOR ACTION
1111	Date Card Incorrect or missing	See msg on 1132 printer
1001	Systems Error	Press start to exit to monitor, call programmer
2223	Same as 1001 above	Same as above
2224	Same as 1001 above	Same as above
2225	Same as 1001 above	Same as above
3331	Same as 1001 above	Same as above
4331	Same as 1001 above	Same as above
4444	Same as 1001 above	Same as above
9999	End of Job	Press Prog. start to exit to monitor

Program Name: P4103

Program Function: Select Records for Yearly Grant Status Report

Program Type: DSF - Cart 0005

Input: Grant Master File

Output: Annual Summary Disk File, Report of Grants Removed (2 part wide stock) on 1132 printer

Execution Prodedure: Job, XEQ, Files Cd, Date Cd (Date of Report, i.e., 09/30/70)

Options: Data Switch 5 - Initial Build of Yearly Grants Removed File

* Note - Switch 5 must be on for initial run only.

PROGRAMMED PAUSES

ACCUM (HEX)	MEANING	OPERATOR ACTION
1111	Date Cd incorrect or missing	See msg on 1132 printer
2222	See msg on 1132 printer	Press start to continue selection of status 6 records
9999	End of Job	Press prog. start to return to monitor - Save control totals printed on 1132 printer
3333	Option Warning Msg	See msg on 1132 - Restart prog. if incorrect switch setting

Program Name: Construction Grant Case Status - P4101

Program Function: Update Status of Construction Grants, add new grants, print listing of status, create Time History File as Service Mechanism

Program Type: DSF (Disk cart 0005)

Input: Initial Project Cards ('1' in cc 80), Project Status Change Cards ('2' in cc 80)

Output: Input Listing, Error Listing, Grant Status Report - all on 1132 printer - 2 pt. wide stock, Time History File (1 record per week)

Execution Prodedure: Job, XEQ, Files Cd, Date Cd (Date of Run cc 1-8, i.e., 10/12/70), Data Cards, Last Cd Indicator ('x' in cc 1)

Options: Data Siwtch 1 - Initial File Build
Data Switch 2 - Updates File, Suppresses print-out
Data Switch 3 - Prints Status Report only
Data Switch 4 - Initial Build of Time History File

PROGRAMMED PAUSES

ACCUM (HEX)	MEANING	OPERATOR ACTION
1111	Date Card incorrect or missing	See msg on 1132 printer
2002	Option Check	See msg on 1132 printer
9999	End of Job	Press program start, exit to monitor
4444	Option Check	See msg on 1132 printer

Program Name: P4104

Program Function: Change or blank permanent fields on Grants Master File and delete records from Master File

Program Type: CLG - Disk Cart 0005

Input: File change Cds ('C' in cc 80), delete Cds ('D' in cc 80), Grants Master File

Output: Updated Grants Master File, Listing of old and new data on 1132 printer, Error Messages on console typewriter, cards with neither 'C' nor 'D' in 80 Selected Stacker 2

Execution Prodedure: Job, FOR, Prog. deck, XEQ, files Cd, date Cd, change or delete cards.

Options: None

* Note: Changes and deletes must be run separately.

PROGRAMMED PAUSES

ACCUM (HEX)	MEANING	OPERATOR ACTION
1111	Date Cd Incorrect or missing	See msg on 1132 printer
1001	Systems Error	Interrupt Request to get back to monitor, notify programmer
9999	End of Job	Press Prog. start to exit to monitor

APPENDIX I

Appendix I-a. Input Transactions Error Edit Listing

WPCNC315FAYETTEVILLE	CUMBERLAND COUNTY	110570	03061
WPCVA318MONTGOMERY COUNTY	MONTGOMERY COUNTY	110570	02141
PROJECT ALREADY ON FILE	WPCMD249		
WPCMD2431104704			2
WPCMD279WESTMINSTER	CARROLL COUNTY	110570	02141
WPCVA3151102702			2
WPCVA3151103706			2
EDASC6061103706			2
WPCVA3121104702			2
WPCVA3351104702			2
WPCVA3351104706			2
WPCVA3171104702			2
EDANC5501030702			2
WPCNC313ALEXANDER MILLS	RUTHERFORD COUNTY	110370	03081
EDANC5501102706			2
WPCNC3221102703			2
WPCNC314DURHAM COUNTY	DURHAM COUNTY	103070	03041
WPCNC322CULLOWHEE	JACKSON COUNTY	103070	04031
WPCMD2761103706			2
WPCMD2491103706			2
WPCMD280CARROLL CO SAN COM	CARROLL COUNTY	110570	02141

Appendix I-b. Sample Copy of the Historical Status Event Report

CASE STATUS REPORT-MANAGEMENT INFORMATION SYSTEM
CURRENT PROJECT STATUS REPORT

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
WPC DC 022	DISTRICT OF COLUMBIA		02 14	07/24	/	/	/	10/14	10/21
WPC DC 023	DISTRICT OF COLUMBIA		02 14	07/24	/	/	/	10/14	10/21
WPC DC 024	DISTRICT OF COLUMBIA		02 14	07/24	/	/	/	10/14	10/21

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CASE STATUS REPORT-MANAGEMENT INFORMATION SYSTEM
CURRENT PROJECT STATUS REPORT

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
EDA MD 357	HURLOCK	DORCHESTER COUNTY	02 13	08/14	/	/	/	/	09/09
WPC MD 231	WSSC	PRINCE GEORGES CO.	02 14	07/24	/	/	/	/	/
WPC MD 234	ANNAPOLIS	ANNE ARUNDEL	02 13	07/23	/	/	/	/	07/24
WPC MD 235	BALTIMORE COUNTY	BALTIMORE COUNTY	02 13	07/23	/	/	/	/	08/04
WPC MD 243	ACCIDENT	GARRETT COUNTY	05 02	10/13	/	10/14	11/04	/	/
WPC MD 249	ROCKVILLE	MONTGOMERY COUNTY	02 14	09/11	/	/	/	/	11/03
WPC MD 251	BALTIMORE		02 13	07/24	/	/	/	/	08/20
WPC MD 259	HOWARD COUNTY	HOWARD COUNTY	02 13	07/23	/	/	/	/	09/29
WPC MD 262	WSSC	MONTGOMERY	02 14	07/24	/	/	/	/	/
WPC MD 267	ALLEGANY COUNTY	ALLEGANY COUNTY	02 14	10/20	/	/	/	/	/
WPC MD 267	ALLEGHENY COUNTY	ALLEGHENY COUNTY	02 14	07/29	10/21	/	/	/	10/29
WPC MD 274	JESSUP	ANNE ARUNDEL COUNTY	02 13	09/24	09/22	/	/	10/14	/
WPC MD 276	CABIN JOHN CREEK	MONTGOMERY COUNTY	02 14	09/24	/	/	/	/	11/03
WPC MD 279	WESTMINSTER	CARROLL COUNTY	02 14	11/05	/	/	/	/	/
WPC MD 280	CARROLL CO SAN COM	CARROLL COUNTY	02 14	11/05	/	/	/	/	/

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
EDA NC 158	TABOR CITY	COLUMBUS COUNTY	03 07	06/23	/	/	/	/	09/14
EDA NC 306	BEAUFORT	CARTERET COUNTY	03 05	09/17	/	/	/	/	09/17
EDA NC 550	WALSTONBURG	GREENE COUNTY	03 04	10/14	10/30	/	/	/	11/02
EDA NC 611	KENANSVILLE	DUPLIN COUNTY	03 06	07/29	/	/	/	/	08/05
EDA NC 612	MAYSVILLE	JONES COUNTY	03 05	08/18	/	/	/	/	09/11
EDA NC 613	SNOW HILL	GREENE COUNTY	03 04	10/02	10/19	/	/	/	10/20
EDA NC 619	BRYSON CITY	SWAIN COUNTY	04 04	09/11	/	09/24	/	/	10/14
FED NC 100	TARHEEL ARMY MIS PLT	ALAMANCE COUNTY	03 06	10/13	/	/	/	/	10/20
WPC NC 276	HIGH POINT	GUILFORD COUNTY	03 06	07/28	/	/	/	/	09/29
WPC NC 278	CONCORD	CABARRUS COUNTY	03 07	09/09	/	/	/	/	10/13
WPC NC 291	ASHEBORO	RANDOLPH COUNTY	03 07	07/28	10/20	/	/	10/05	/
WPC NC 293	CHARLOTTE	MECKLENBURG COUNTY	03 08	07/23	/	/	/	/	09/24
WPC NC 294	CHARLOTTE	MECKLENBURG COUNTY	03 08	07/23	/	/	/	/	09/24
WPC NC 295	EDEN	ROCKINGHAM COUNTY	03 02	07/28	/	/	/	/	08/21
WPC NC 296	LAGRANGE	LENOIR COUNTY	03 04	07/28	/	/	/	/	09/24
WPC NC 297	MECKLENBURG COUNTY	MECKLENBURG COUNTY		07/23	/	/	/	/	09/24
WPC NC 298	MOUNT AIRY	SURRY COUNTY	03 07	06/30	/	/	/	/	10/01
WPC NC 299	WHITEVILLE	COLUMBUS COUNTY	03 07	07/23	/	/	/	/	09/24
WPC NC 300	WILSON	WILSON COUNTY	03 04	07/28	/	/	/	/	07/08
WPC NC 301	LIMESTONE	BUNCOMBE COUNTY	04 03	08/21	/	/	/	/	09/24
WPC NC 302	GOLDSBORO	WAYNE COUNTY	03 04	07/24	/	/	/	/	10/08
WPC NC 303	CHARLOTTE	MECKLENBURG COUNTY	03 08	10/13	10/15	/	/	/	10/16
WPC NC 304	CHARLOTTE	MECKLENBURG COUNTY	03 08	10/14	10/15	/	/	/	10/16

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
WPC NC 308	THOMASVILLE	DAVIDSON COUNTY	03 07	09/11	/	/	/	/	09/15
WPC NC 309	CHARLOTTE	MECKLENBURG COUNTY	03 08	10/14	10/15	/	/	/	10/16
WPC NC 310	SALISBURY	ROWAN COUNTY	03 07	09/28	10/07	/	/	10/14	/
WPC NC 311	BUNCOMBE COUNTY	BUNCOMBE COUNTY	04 03	09/20	10/03	10/02	10/19	/	10/19
WPC NC 313	ALEXANDER MILLS	RUTHERFORD COUNTY	03 08	11/03	/	/	/	/	/
WPC NC 314	DURHAM COUNTY	DURHAM COUNTY	03 04	10/30	/	/	/	/	/
WPC NC 315	FAYETTEVILLE	CUMBERLAND COUNTY	03 06	11/05	/	/	/	/	/
WPC NC 322	CULLOWHEE	JACKSON COUNTY	04 03	10/30	/	11/02	/	/	/

CURRENT PROJECT STATUS REPORT

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
EDA PA 324	UNIONTOWN	FAYETTE COUNTY	05 02	08/03	/	/	/	/	09/25
HUD PA 027	POINT MARION	FAYETTE COUNTY	05 02	08/06	/	/	/	/	08/28
HUD PA 432	HORSHAM	MONTGOMERY COUNTY	02 05	07/31	/	/	/	/	10/08
HUD PA 448	VALLEY TWP	CHESTER COUNTY	02 08	09/23	/	09/25	/	/	10/13
WPC PA 350	SOUTH UNION TWP	FAYETTE COUNTY	05 02	09/09	09/22	09/24	10/19	/	10/21
WPC PA 371	BROWNSVILLE	FAYETTE COUNTY	05 02	07/29	/	/	/	/	09/30
WPC PA 410	DALLAS AREA	LUZERNE COUNTY	02 12	07/23	/	/	/	/	10/06
WPC PA 428	EPHRATA	LANCASTER COUNTY	02 12	07/29	/	/	/	/	09/21
WPC PA 429	GREENE COUNTY	GREENE COUNTY	05 02	07/29	/	/	/	/	10/16
WPC PA 430	SEWICKLEY	ALLEGHENY COUNTY	05 03	07/13	/	/	/	/	08/06
WPC PA 432	ROSCOE BOROUGH	WASHINGTON COUNTY	05 21	07/23	/	/	/	/	10/09
WPC PA 434	BEAVERTOWN	SNYDER COUNTY	02 12	07/23	/	/	/	/	08/24
WPC PA 445	MILESBURG BOGGS	CENTRE COUNTY	02 12	07/23	09/15	/	/	10/13	/
WPC PA 447	AMBRIDGE	BEAVER COUNTY	05 03	07/13	/	/	/	/	08/06
WPC PA 449	GREENFIELD TWP	BLAIR COUNTY	02 12	07/23	/	/	/	/	08/27
WPC PA 452	SAEGERTOWN	CRAWFORD COUNTY	05 01	07/23	02/24	/	/	09/11	/
WPC PA 456	INDIANA TWP	ALLEGHENY COUNTY	05 01	07/23	/	/	/	/	07/27
WPC PA 457	JOHNSTOWN	CAMBRIA COUNTY	05 01	07/23	08/31	/	/	07/26	/
WPC PA 458	LEHIGH COUNTY	LEHIGH COUNTY	02 04	07/23	/	/	/	/	08/20
WPC PA 459	LOWER ALLEN TWP	CUMBERLAND COUNTY	02 12	07/23	10/05	/	/	10/15	/
WPC PA 460	SPRING TWP	CENTRE COUNTY	02 12	07/23	09/15	/	/	10/13	/
WPC PA 463	DOWNINGTOWN	CHESTER COUNTY	02 07	08/28	09/23	09/25	10/12	10/14	10/29
WPC PA 464	HATFIELD	MONTGOMERY COUNTY	02 04	07/23	/	/	/	/	07/27
WPC PA 469	COLLEGEVILLE-TRAPPE	MONTGOMERY COUNTY	02 05	07/23	/	/	/	/	09/17

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
WPC PA 471	LOWER PAXTON TWP	DAUPHIN COUNTY	02 12	07/23	/	/	/	/	09/30
WPC PA 473	UPPER VERION TWP	MONTGOMERY COUNTY	02 05	07/23	/	/	/	/	08/06
WPC PA 474	CHALPONT-NEW BRITAIN	BUCKS COUNTY	02 03	08/28	09/24	10/15	/	/	10/27
WPC PA 475	SALISBURY	LEHIGH COUNTY	02 04	09/28	10/13	10/13	/	/	/

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
EDA SC 191	RIDGELAND	JASPER COUNTY	03 09	07/31	/	/	/	/	09/25
EDA SC 606	LATTA	DILLON COUNTY	03 07	10/08	/	/	/	/	11/03
HUD SC 091	WALTERBORO	COLLETON COUNTY	03 09	07/29	/	/	/	/	10/01
WPC SC 204	MARIETTA	GREENVILLE COUNTY	03 08	10/02	10/09	/	/	/	10/28
WPC SC 207	LANCASTER	LANCASTER COUNTY	03 08	07/29	09/22	/	/	09/25	/
WPC SC 212	LANCASTER'	LANCASTER COUNTY	03 08	07/29	/	/	/	/	09/17
WPC SC 213	BATESBURG	LEXINGTON COUNTY	03 08	07/23	10/09	/	/	07/29	10/27
WPC SC 215	NORTH AUGUSTA	AIKEN COUNTY	03 13	07/23	/	/	/	/	08/16
WPC SC 216	UNION	UNION COUNTY	03 08	07/23	/	/	/	/	09/16
WPC SC 217	SC DEPT OF PARKS	ORANGEBURG COUNTY	03 09	07/23	/	/	/	/	09/28
WPC SC 220	GANTT	GREENVILLE COUNTY	03 08	07/28	/	/	/	/	09/21
WPC SC 221	ABBEVILLE	ABBEVILLE COUNTY	03 13	07/23	/	08/21	10/16	/	10/19
WPC SC 222	BEREA	GREENVILLE COUNTY	03 08	07/28	09/24	/	/	08/22	/
WPC SC 223	PICKENS	PICKENS COUNTY	03 13	07/28	/	/	/	/	09/30
WPC SC 226	ANDREWS	GEORGETOWN COUNTY	03 07	08/06	10/08	/	/	08/06	/

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
EDA VA 486	ALBERTA	BRUNSWICK COUNTY	03 01	08/14	/	/	/	/	09/11
EDA VA 672	DUFFIELD	SCOTT COUNTY	04 02	07/23	/	/	/	/	09/17
HUD VA 058	GALAX	CARROLL COUNTY	05 07	08/14	/	/	/	10/02	10/15
WPC VA 285	AUGUSTA CO SER AUTH	AUGUSTA COUNTY	02 14	07/13	/	/	/	/	07/23
WPC VA 295	SPERRYVILLE	RAPPAHANNOCK COUNTY	02 15	10/05	10/06	/	/	/	10/29
WPC VA 296	WAKEFIELD	SUSSEX COUNTY	03 01	10/23	/	/	/	/	/
WPC VA 298	CHATHAM	PITTSYLVANIA COUNTY	03 02	09/28	10/08	/	/	/	10/28
WPC VA 302	AUGUSTA CO SER AUTH	AUGUSTA COUNTY	02 14	07/23	/	/	/	/	08/07
WPC VA 304	HENRICO COUNTY	HENRICO COUNTY	02 16	10/20	/	/	/	/	/
WPC VA 305	HENRICO COUNTY	HENRICO COUNTY	02 16	09/16	09/28	/	/	09/24	/
WPC VA 306	EMPORIA	GREENSVILLE COUNTY	03 01	10/02	10/13	/	/	10/27	/
WPC VA 307	CHESTERFIELD COUNTY	CHESTERFIELD COUNTY	02 16	10/15	/	/	/	/	/
WPC VA 312	CHARLOTTESVILLE	ALBEMARLE COUNTY	02 16	10/08	11/04	/	/	10/19	/
WPC VA 315	LYNCHBURG		02 16	10/06	11/02	/	/	/	11/03
WPC VA 317	BLACKSTONE	NOTTOWAY COUNTY	03 01	10/26	11/04	/	/	/	/
WPC VA 318	MONTGOMERY COUNTY	MONTGOMERY COUNTY	02 14	11/05	/	/	/	/	/
WPC VA 335	WARSAW	RICHMOND COUNTY	02 15	10/06	11/04	/	/	/	11/04
WPC VA 339	HRSD	JAMES CITY COUNTY	02 16	09/17	10/08	/	/	09/23	/

CURRENT PROJECT STATUS REPORT

REPORT DATE 11/06/70

PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	MAJOR-MINOR BASIN	PROJECT STATUS-MONTH/DAY 1	2	3	4	5	6
WPC WV 161	SHEPHERDSTOWN	JEFFERSON COUNTY	02 14	09/21	/	/	/	/	09/29

C/I
C/I
A

Appendix I-c. Sample Copy of the Current Project Status Report

CASE STATUS REPORT-MANAGEMENT INFORMATION SYSTEM

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 1

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
106	WPC MD 231	WSSC ANACOSTIA PS	PRINCE GEORGES CO.	07/24/70	
106	WPC MD 262	WSSC NW BR ANA SEWER	MONTGOMERY COUNTY	07/24/70	
2	WPC MD 279	WESTMINSTER	CARROLL COUNTY	11/05/70	
2	WPC MD 280	CARROLL CO SAN COM	CARROLL COUNTY	11/05/70	

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 1

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
4	WPC NC 313	ALEXANDER MILLS	RUTHERFORD COUNTY	11/03/70	
8	WPC NC 314	DURHAM COUNTY	DURHAM COUNTY	10/30/70	
2	WPC NC 315	FAYETTEVILLE	CUMBERLAND COUNTY	11/05/70	

SSA

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 1

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
15	WPC VA 296	WAKEFIELD	SUSSEX COUNTY	10/23/70	
18	WPC VA 304	HENRICO COUNTY	HENRICO COUNTY	10/20/70	
23	WPC VA 307	CHESTERFIELD COUNTY	CHESTERFIELD COUNTY	10/15/70	
2	WPC VA 318	MONTGOMERY COUNTY	MONTGOMERY COUNTY	11/05/70	

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 2

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
3	APC VA 317	BLACKSTONE	NOTTOWAY COUNTY	10/26/70	

GSA

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 3

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
5	WPC NC 322	CULLOWHEE	JACKSON COUNTY	10/30/70	

C.A.

CASE STATUS REPORT-MANAGEMENT INFORMATION SYSTEM

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 3

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
25	WPC PA 475	SALISBURY	LEHIGH COUNTY	09/28/70	

EPA

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 4

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
3	WPC MD 243	ACCIDENT	GARRETT COUNTY	10/13/70	

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 5

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
24	WPC MD 274	JESSUP	ANNE ARUNDEL COUNTY	09/24/70	

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 5

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
33	WPC NC 291	ASHEBORO	RANDOLPH COUNTY	07/28/70	
24	WPC NC 310	SALISBURY	ROWAN COUNTY	09/28/70	

CASE STATUS REPORT-MANAGEMENT INFORMATION SYSTEM

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 5

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
29	WPC PA 445	MILESBURG BOGGS	CENTRE COUNTY	07/23/70	
97	WPC PA 492	SAEGERTOWN	CRAWFORD COUNTY	07/23/70	
102	WPC PA 457	JOHNSTOWN	CAMBRIA COUNTY	07/23/70	
23	WPC PA 459	LOWER ALLEN TWP	CUMBERLAND COUNTY	07/23/70	
23	WPC PA 480	SPRING TWP	CENTRE COUNTY	07/23/70	

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 5

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
69	WPC SC 207	LANCASTER	LANCASTER COUNTY	07/29/70	
77	WPC SC 222	BEREA	GREENVILLE COUNTY	07/28/70	
93	WPC SC 226	ANDREWS	GEORGETOWN COUNTY	08/06/70	

CURRENT REPORT DATE 11/06/70

PROJECT STATUS NUMBER 5

DAYS IN STATUS	PROJECT NUMBER	PROJECT TITLE	COUNTY NAME	DATE PROJECT RECEIVED	REMARKS-WORK ORDERS TO PROJECT STAFF
44	WPC VA 305	HENRICO COUNTY	HENRICO COUNTY	09/16/70	
11	WPC VA 306	EMPORIA	GREENSVILLE COUNTY	10/02/70	
19	WPC VA 312	CHARLOTTESVILLE	ALBEMARLE COUNTY	10/08/70	
49	WPC VA 339	HRSD	JAMES CITY COUNTY	09/17/70	

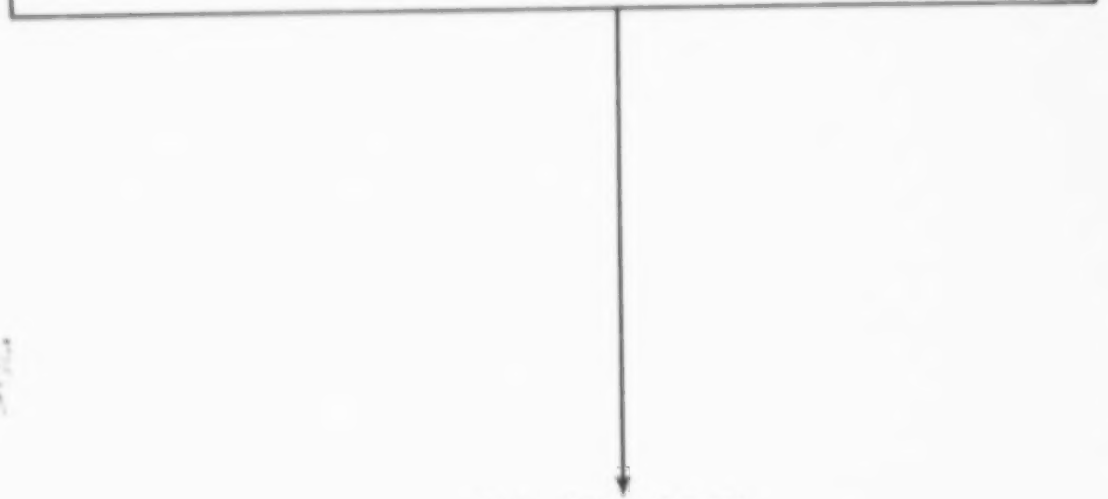
EC
A

Appendix I-d. Sample Copy of Management Service Mechanism Check Report

CASE STATUS REPORT MANAGEMENT INFORMATION SYSTEM
TIME HISTORY FOR SERVICE MECHANISM

11/13/70

WEEK	REPORT DATE	PROJECTS IN	FINAL APPROVALS OUT
1	11/13/70	2	0



TIME HISTORY – 26 WEEKS

(Sample is for 1st Week start-up only).

APPENDIX II

Appendix II-a. Program Listing (P4101)

```
// JOB

LOG DRIVE   CART SPEC   CART AVAIL  PHY DRIVE
  0000        0009        0009        0000

V2 M07   ACTUAL  8K  CONFIG  8K

// FOR
*LIST ALL
** CONSTRUCTION GRANT STATUS
*ONE WORD INTEGERS
*EXTENDED PRECISION
*IOCS(CARD,1132 PRINTER,DISK)
```

```
      DIMENSION IREAD(80),IDATE(8),IDISK(106)                          01010
      DIMENSION ISAVE(2),IDCTL(8)
      DIMENSION ITSDT(6)
      DATA NCR/2/,NLP/3/,IDISK/106*' '/,NREC2/0/,IREC1/0/,IREC2/1/      01030
      DATA IPAGE/0/
      DATA I6REC/0/,IRCIN/0/
      DEFINE FILE 1(250,106,U,K),2(250,80,U,K)                         01040
      DEFINE FILE 3(27,12,U,K)
      WRITE(NLP,110)                                                   01041
  110 FORMAT(1H1,2X)                                                   01043
C      READ DATE CARD                                                  01050
   10 READ(NCR,1)IDATE                                                 01060
    1 FORMAT(8A1)
      IF(IDATE(3)-24896)11,12,11                                       01070
   11 WRITE(NLP,2)                                                     01080
    2 FORMAT(1H1,'DATE CD INCORRECT OR MISSING-CORRECT,PUSH START TO CON 01090
     2TINUE')                                                          01100
      WRITE(NLP,3)                                                     01110
    3 FORMAT(1H1,2X)                                                   01120
      PAUSE 1111                                                       01130
      GO TO 10                                                         01140
   12 CALL DATSW(3,LA)
      IF(LA-1)204,205,204
  205 READ(1'250)NREC                                                  01014
      GO TO 207                                                        01016
  204 CONTINUE                                                         01017
C   ON INITIAL FILE BUILD-DATA SW 1 SHOULD BE ON                       02010
      CALL DATSW(1,LL)
      IF(LL-1)13,14,13
   14 WRITE(NLP,111)                                                   02030
  111 FORMAT(1H1,'DATA SWITCH 1 IS ON-THIS IS PROBABLY INCORRECT,MAKE CE 02051
     2RTAIN BEFORE PRESSING START')                                    02052
      WRITE(NLP,3)                                                     02053
      PAUSE 2002                                                       02054
      NCNT=1                                                           02055
      GO TO 15                                                         02040
C                          IF NOT INITIAL FILE RUN,READ NO OF RECORDS ON 02050
C                          PROJECT FILE FM DISK                        02060
   13 READ(1'250)NREC                                                  02070
      NCNT=NREC+1                                                      02080
C                          READ INPUT CARDS AND SEPARATE INTO NEW RECORDS 02090
C                          AND UPDATES                                 02100
   15 READ(NCR,4)IREAD                                                 02110
    4 FORMAT(80A1)                                                     02120
      IF(IREAD(1)+6336)210,50,210                                      02130
  210 IF(IREAD(80)+3776)21,20,21                                       02140
   21 IF(IREAD(80)+3520)22,25,22                                       02150
   22 WRITE(NLP,5)                                                     02160
    5 FORMAT(1H ,'CD SELECTED IN STACKER HAS AN INVALID CODE IN COL. 80' 02170
     2)                                                                02180
      CALL STACK                                                       02190
      GO TO 15                                                         02200
C                          ROUTINE TO WRITE ORIG. PROJ. ON DISK        02210
   20 DO 300 I=1,NREC                                                  03010
      READ(1'I)IDCTL
```

```
      IF(NCOMP(IDCTL,1,8,IREAD,1))300,305,300
  305 WRITE(NLP,310)(IREAD(J),J=1,8)
  310 FORMAT(1H ,'PROJECT ALREADY ON FILE',4X,8A1)
      GO TO 15
  300 CONTINUE                                                          03020
      CALL MOVE(IREAD,1,49,IDISK,1)                                     03030
      CALL MOVE(IREAD,76,79,IDISK,50)                                   03040
      CALL MOVE(IREAD,50,55,IDISK,55)                                   03050
      IDISK(54)=IREAD(80)                                               03060
      WRITE(1'NCNT)IDISK                                                03065
      IRCIN=IRCIN+1                                                     03070
      NCNT=NCNT+1                                                       03080
C                         GO TO PRINT THE CARD                        03090
      GO TO 30                                                          03100
C                         ROUTINE TO WRITE  A CHANGE IN PROJ. STATUS   03110
   25 NREC2=NREC2+1                                                     03120
      WRITE(2'NREC2)IREAD                                               03130
   30 WRITE(NLP,8)IREAD                                                 03140
    8 FORMAT(1H ,80A1)                                                  03150
      GO TO 15                                                          03160
C                         END OF FILE SEPARATING PHASE                03170
C                         SORT BOTH MASTER AND DETAILFILES ON PROJ. NO. 03180
   50 WRITE(NLP,9)                                                      03190
    9 FORMAT(1H1,2X)
      NREC=NCNT-1                                                       03210
      WRITE(1'250)NREC                                                  04010
      CALL LSDMF(1,1,1,NREC,1,1,1,8)                                    04020
      CALL LSDMF(2,1,1,NREC2,1,1,1,8)                                   04030
C                         BEGIN UPDATE PHASE OF PROGRAM-CHANGES AGAINST 04040
C                         MASTER FILE                                   04050
      DO 55 I=1,8                                                       04060
   55 IDISK(I)=-16064                                                   04070
C                         READ THE DETAIL FILE                        04080
   57 READ(2'IREC2)IREAD                                                04090
      GO TO 62                                                          04100
  565 READ(1'IREC1)IDISK                                                04110
   62 IF(NCOMP(IREAD,1,8,IDISK,1))54,60,56                              04120
   54 WRITE(NLP,7)IREAD                                                 04130
    7 FORMAT(1H ,'NO MATCHING REC ON PROJ. FILE  ',80A1)                04140
      GO TO 570                                                         04150
C                         DETAIL HIGHER THAN MASTER FILE              04160
                                                                        04170
   56 IREC1=IREC1+1                                                     04180
      IF(NREC-IREC1)560,565,565                                         04190
C                         END OF FILE ON MASTER FILE-TEST FOR EOF DETAIL 04200
  560 IF(NREC2-IREC2)500,561,561                                        04210
  561 CALL FILL(IDISK,1,8,32320)                                        04220
      GO TO 62                                                          05010
  570 IREC2=IREC2+1                                                     05020
      IF(NREC2-IREC2)500,57,57                                          05030
C                         ROUTINE TO PROCESS A FILE STATUS CHANGE     05040
   60 CODE=GET(IREAD,15,15,1,0)                                         05050
      ICODE=CODE                                                        05060
      GO TO(31,32,33,34,35,36),ICODE
   31 WRITE(NLP,6)IREAD
```

```
     6 FORMAT(1H ,'PROJ. STATUS CHANGE WITH A 1 IN CC 15 ',80A1)                 09080
       GO TO 570                                                                09090
                              PROCESS PROJ. STATUS 2                            09100
C                                                                               09110
    32 IDISK(61)=IREAD(15)                                                      09120
       CALL MOVE(IREAD,9,14,IDISK,62)                                           09130
                              UPDATE MASTER RECORD                              09140
C                                                                               09150
    38 WRITE(1'IREC1)IDISK                                                      09160
       GO TO 570                                                                09170
C                                                                               09180
C                             PROCESS STATUS 3                                  09190
C                                                                               09200
    33 IDISK(68)=IREAD(15)                                                      06010
       CALL MOVE(IREAD,9,14,IDISK,69)                                           06020
       GO TO 38                                                                 06030
                              PROJECT STATUS 4                                  06040
C                                                                               06050
    34 IDISK(75)=IREAD(15)                                                      06060
       CALL MOVE(IREAD,9,14,IDISK,76)                                           06070
       GO TO 38                                                                 06080
                              PROJECT STATUS 5                                  06090
C                                                                               06100
    35 IDISK(82)=IREAD(15)                                                      06110
       CALL MOVE(IREAD,9,14,IDISK,83)                                           06115
       GO TO 38                                                                 06120
                              PROJECT STATUS 6                                  06130
C                                                                               06140
    36 IDISK(89)=IREAD(15)                                                      07010
       CALL MOVE(IREAD,9,14,IDISK,90)                                           07020
       I6REC=I6REC+1                                                            07030
       GO TO 38
                              END PROCESSING ROUTINES
C                             BEGIN PRINT PHASE
C
   500 CALL DATSW(2,LLL)
       IF(LLL-1)207,99,207
   207 IREC1=1
C                              SORT THE FILE BY STATE
       CALL LSDMF(1,1,1,NREC,1,3,4,2,1,3,6,3)
       READ(1'IREC1)IDISK
       CALL MOVE(IDISK,4,5,ISAVE,1)
       IOFLO=2                                                                  07040
   501 IPAGE=IPAGE+1
       LINCT=0                                                                  07050
       WRITE(NLP,100)IPAGE                                                      07060
   100 FORMAT(1H1,36X,'CASE STATUS REPORT-MANAGEMENT INFORMATION SYSTEM',       07070
      216X,'PAGE ',I3)                                                          07080
       WRITE(NLP,101)                                                           07090
   101 FORMAT(1H ,49X,'CURRENT PROJECT STATUS REPORT'/)                         07100
       WRITE(NLP,102)IDATE                                                      07110
   102 FORMAT(1H ,50X,'REPORT DATE ',8A1/)                                      07120
       WRITE(NLP,103)                                                           07130
   103 FORMAT(1H,79X,'PROJECT STATUS-MONTH/DAY')                                07140
       WRITE(NLP,104)                                                           07150
   104 FORMAT(1H ,2X,'PROJECT',9X,'PROJECT',19X,'COUNTY',10X,'MAJOR-MINOR       07160
      2')                                                                       07170
       WRITE(NLP,105)                                                           07180
   105 FORMAT(1H ,2X,'NUMBER',10X,'TITLE',17X'NAME',15X,'BASIN',8X,'1',7        07190
      2X,'2',7X,'3',7X,'4',7X,'5',7X,'6')
       GO TO(200,215),IOFLO                                                     07200
                              READ THE PROJECT MASTER FILE
C
```

```
  200 READ(1'IREC1)IDISK                                                    07210
C                          TEST FOR CONTROL BREAK ON STATE
      IF(NCOMP(IDISK,4,5,ISAVE,1))214,215,214
  214 IF(LINCT)220,221,220
  221 CALL MOVE(IDISK,4,5,ISAVE,1)
      GO TO 219
  220 IOFLO=2
      CALL MOVE(IDISK,4,5,ISAVE,1)
      GO TO 501
  219 WRITE(NLP,106)(IDISK(I),I=1,53),(IDISK(J),J=55,58),(IDISK(J), J=62    08010
     2,65),(IDISK(JJ),JJ=69,72),(IDISK(JJ),JJ=76,79),(IDISK(JJ),JJ=83,86
     3),(IDISK(JJ),JJ=90,93)
  106 FORMAT(1HO,3A1,1X,2A1,1X,3A1,2X,21A1,2X,20A1,4X,2A1,1X,2A1,6X,6(2A    08040
     21,'/',2A1,3X))                                                        08050
      IREC1=IREC1+1                                                         08060
      IF(IREC1-NREC)201,201,990                                             0808
  201 LINCT=LINCT+1
      IF(LINCT-23)200,200,5010
 5010 IOFLO=1
      GO TO 501
C                          RE-SORT FILE ON PROJECT NUMBER
  990 CALL LSDMF(1,1,1,NREC,1,1,1,8)
C                          END OF JOB ROUTINE                             08100
   99 CALL DATSW(3,LL)
      IF(LL-1)810,811,810
C                         WRITE  PROJECTS IN AND FINAL APPROVALS OUT
  810 WRITE(NLP,901)IRCIN,I6REC
  901 FORMAT(1H1,'NO. OF NEW PROJECTS',I6,4X,'NO. OF FINAL APPROVALS',I6
     2)
C                         ROUTINE TO UPDATE TIME HISTORY FILE-1ST,TST INITIAL
      CALL DATSW(4,LL)
      IF(LL-1)804,805,804
C                         NOT INITIAL BUILD
  804 READ(3'27)NTHRC
      IF(NTHRC-26)801,802,813
  813 STOP 3333
  801 IRTH=NTHRC+1
  806 WRITE(3'IRTH)(IDATE(I),I=1,2),(IDATE(I),I=4,5),(IDATE(I),I=7,8),IR
     2CIN,I6REC
C                         WRITE NO. OF RECORDS ON FILE ON LAST REC OF FILE
      WRITE(3'27)IRTH
      GO TO 811
C                         INITIAL BUILD OF TIME HISTORY FILE
  805 WRITE(NLP,902)
  902 FORMAT(1H1,'DATA SWITCH 4 IS ON,MAKE CERTAIN THIS IS CORRECT BEFOR
     2E PRESSING START'//////////)
      PAUSE 4444
      CALL DATSW(4,LL)
      IF(LL-1)804,815,804
  815 IRTH=1
      GO TO 806
C                         ROUTINE WHEN FILE IS FULL,DROP ORIGINAL RECORD AND
C                         REPACK
  802 DO 803 I=2,26
      READ(3'I)ITSDT,ISRCN,IS6RC
```

```
      IOUT=I-1
      WRITE(3'IOUT)ITSDT,ISRCN,IS6RC
  803 CONTINUE
C                 WRITE CURRENT DATE ON FILE AFTER RE-PACKING
      IRTH=26
      GO TO 806
C                 END OF JOB
  811 WRITE(NLP,107)                                                08120
  107 FORMAT(1H1,2X)
      STOP 9999                                                     08130
      END                                                           08140
VARIABLE ALLOCATIONS
  CODE(R )=0015      IREAD(I )=0067-0018 IDATE(I )=006F-0068 IDISK(I )=00D9-0070 ISAVE(I )=00DB-00DA IDCTL(I )=00E3-00DC
 ITSDT(I )=00E9-00E4     K(I )=00EA        NLP(I )=00EB        NCR(I )=00EC        LA(I )=00ED       NREC(I )=00EE
    LL(I )=00EF       NCNT(I )=00F0         I(I )=00F1         J(I )=00F2       IRCIN(I )=00F3      NREC2(I )=00F4
 IREC2(I )=00F5      IREC1(I )=00F6      ICODE(I )=00F7      I6REC(I )=00F8       LLL(I )=00F9      IOFLO(I )=00FA
 IPAGE(I )=00FB      LINCT(I )=00FC        JJ(I )=00FD      NTHRC(I )=00FE       IRTH(I )=00FF      ISRCN(I )=0100
 IS6RC(I )=0101       IOUT(I )=0102

STATEMENT ALLOCATIONS
 110   =0138  1     =013C  2     =013F  3     =0161  111   =0165  4     =0192  5     =0195  310   =01B4  8     =01C7  9     =01CC
 7     =01D0  6     =01E6  100   =01FF  101   =0222  102   =0237  103   =0245  104   =0256  105   =0272  106   =029A  901   =02BB
 902   =02D8  107   =0309  10    =032A  11    =0338  12    =0344  205   =034E  204   =0355  14    =035F  13    =036F  15    =037A
 210   =0388  21    =0390  22    =0398  20    =03A0  305   =03B3  300   =03CC  25    =0407  30    =0414  50    =041D  55    =0445
 57    =0458  565   =0460  62    =0466  54    =0471  56    =047A  560   =0486  561   =048C  570   =0494  60    =04A2  31    =04B9
 32    =04C2  38    =04D1  33    =04DA  34    =04EB  35    =04FC  36    =050D  500   =0524  207   =052E  501   =0551  200   =057E
 214   =058D  221   =0591  220   =059A  215   =05A7  201   =063C  5010  =0648  990   =064E  99    =0658  810   =0662  804   =0674
 813   =0681  801   =0683  806   =0689  805   =06D2  815   =06E2  802   =06E8  803   =0707  811   =0716

FEATURES SUPPORTED
 ONE WORD INTEGERS
 EXTENDED PRECISION
 IOCS

CALLED SUBPROGRAMS
 DATSW    STACK    NCOMP    MOVE     LSDMF    FILL     GET      ELD      ESTO     IFIX     CARDZ    PRNTZ    SRED     SWRT     SCOMP
 SFIO     SIOAI    SIOIX    SIOI     SUBSC    STOP     PAUSE    SDFIO    SDRED    SDWRT    SDCOM    SDAI     SDIX     SDI

REAL CONSTANTS
   .100000000E 01=0106

INTEGER CONSTANTS
 24896=0109   1111=010A      3=0108      1=010C    250=010D   2002=010E   6336=010F   3776=0110   3520=0111      8=0112
    49=0113     76=0114     79=0115     50=0116     55=0117      2=0118  16064=0119  32320=011A     15=011B      9=011C
    14=011D     62=011E     69=011F     83=0120     90=0121      4=0122      6=0123      5=0124      0=0125     53=0126
    58=0127     65=0128     72=0129     86=012A     93=0128     23=012C     27=012D     26=012E   3333=012F      7=0130
  4444=0131   9999=0132   4369=0133   8194=0134  13107=0135  17476=0136 -26215=0137

CORE REQUIREMENTS FOR
 COMMON      0  VARIABLES    262  PROGRAM   1558

 END OF COMPILATION

// XEQ P4101    1
```

```
*FILES(1,F4101),(3,F4103)
```

Appendix II-b. Program Listing (P4103)

```
PAGE   1

// JOB

LOG DRIVE   CART SPEC   CART AVAIL  PHY DRIVE
  0000        0005        0005        0000

V2 M07   ACTUAL  8K  CONFIG  8K

// FOR
** SELECT RECORDS FOR YEAR-END GRANT SUMMARY
*LIST ALL
*IOCS(CARD,1132 PRINTER,DISK)
*EXTENDED PRECISION
*ONE WORD INTEGERS
```

```
      DIMENSION  IDISK(100),IDATE(8),ISAVE(2)                                01010
      DATA NLP/3/,NCR/2/,IPAGE/0/,ICT1/0/,ITCT/0/                            01020
      DATA LR/0/,NWREC/0/                                                    01025
      DATA IIMCT/0/,INREC/0/
      DEFINE FILE 1(250,106,U,K),2(250,106,U,K)                              01030
      DEFINE FILE 3(290,106,U,K),4(290,106,U,K)                              01035
      READ(1'290)NMREC                                                       01040
C                   READ AND CHECK DATE CD                                   01050
   10 READ(NCR,1)IDATE                                                       01060
    1 FORMAT(8A1)                                                            01070
      IF(IDATE(3)-24896)12,29,12                                             01080
   12 WRITE(NLP,2)                                                           01090
    2 FORMAT(1H1,'DATE CD INCORRECT OR MISSING-CORRECT,PUSH START TO CON      01100
     2TINUE'//////)                                                          02010
      PAUSE 1111                                                             02020
      GO TO 10                                                               02030
C                                   IF DATA    SWITCH 5 ON,INITIAL BUILD     02040
   29 CALL DATSW(5,LL)                                                       02050
      IF(LL-1)30,31,30                                                       02060
   30 READ(2'290)NYRREC                                                      02070
      NREC=NYRREC+1                                                          02080
      GO TO 11                                                               02090
   31 NREC=1                                                                 02100
      WRITE(NLP,703)
  703 FORMAT(1H1,'DATA SWITCH 5 IS ON,MAKE CERTAIN THIS IS CORRECT BEFOR
     2E PRESSING START'////////)
      PAUSE 3333
      GO TO 11                                                               02110
C                   SELECT STATUS 6 RECORDS FM MASTER FILE                   02120
   11 DO 20 I=1,NMREC                                                        02130
      READ(1'I)IDISK                                                         02140
      IF(IDISK(89)-2696)220,35,220
C     IF NOT STATUS 6, SELECT FOR MASTER FILE REBUILD
  220 IIMCT=IIMCT+1
      WRITE(3'IIMCT)IDISK
   20 CONTINUE                                                               02160
      GO TO 50                                                               02170
C                   SELECT RECORD-STATUS IS 6                                02180
   35 WRITE(2'NREC)IDISK                                                     02190
      NREC=NREC+1                                                            02200
      NWREC=NWREC+1
      WRITE(4'NWREC)IDISK
      INREC=INREC+1                                                          02195
      IF(290 - NREC-25)40,40,20                                              02210
C                     YEAR END SUMMARY FILE IS GETTING FULL                  02220
   40 WRITE(NLP,3)NREC                                                       02230
    3 FORMAT(1H1,'NO. OF RECORDS ON YR END FILE NEARING FILE LIMIT-NOTIF     03010
     2Y PROGRAMMER AT END OF JOB  NREC=',I5)                                 03020
      WRITE(NLP,107)                                                         03030
      PAUSE 2222                                                             03040
      GO TO 20                                                               03050
C
C             END OF SELECTION PHASE,SORT WORK FILE AND PRINT PROJ. REM.     03060
   50 NREC=NREC-1
      WRITE(2'290)NREC
```

```
      CALL LSCMP(4,1,1,NWREC,1,3,4,2,1,3,6,3)                          07030
      CALL LSCMP(4,1,1,NWREC,1,3,4,2,1,3,6,3)                          07030
      IREC1=1                                                          07035
      READ(4'IREC1)IDISK
      CALL MOVE(IDISK,4,3,ISAVE,1)
      IOFLO=2
  901 IPAGE=IPAGE+1                                                    07040
      LINCT=0                                                          07050
      WRITE(NLP,100)IPAGE                                              07060
  100 FORMAT(1H1,36X,'CASE STATUS REPORT-MANAGEMENT INFORMATION SYSTEM',  07070
     216X,'PAGE ',I3)
      WRITE(NLP,101)
  101 FORMAT(1H ,65X,'RECORDS REMOVED TO YEARLY STATUS')               07100
      WRITE(NLP,102)IDATE                                              07110
  102 FORMAT(1H ,50X,'REPORT DATE ',8A1/)                              07120
      WRITE(NLP,103)                                                   07130
  103 FORMAT(1H,79X,'PROJECT STATUS-MONTH/DAY')                        07140
      WRITE(NLP,104)                                                   07150
  104 FORMAT(1H ,2X,'PROJECT',9X,'PROJECT',15X,'COUNTY',10X,'MAJOR-MINOR  07160
     2')                                                               07170
      WRITE(NLP,105)                                                   07180
  105 FORMAT(1H ,2X,'NUMBER',10X,'TITLE',17X'NAME',15X,'BASIN',8X,'1',7   07190
     2X,'2',7X,'3',7X,'4',7X,'5',7X,'6')
      GO TO(200,215),IOFLO                                             07195
  200 READ(4'IREC1)IDISK
C                       TEST FOR CONTROL BREAK ON STATE
      IF(NCOMP(IDISK,4,3,ISAVE,1))214,215,214
  214 IOFLO=2
      CALL MOVE(IDISK,4,3,ISAVE,1)
      WRITE(NLP,5)ICT1
    5 FORMAT(1H0,'TOTAL PROJECTS REMOVED FOR STATE',I8)
      ITCT=ITCT+ICT1
      ICT1=0
      IF(LR)901,901,99
  215 WRITE(NLP,106)(IDISK(I),I=1,53),(IDISK(J),J=55,58),(IDISK(J), J=62   00010
     2,65),(IDISK(JJ),JJ=69,72),(IDISK(JJ),JJ=76,79),(IDISK(JJ),JJ=83,86
     3),(IDISK(JJ),JJ=90,93)
  106 FORMAT(1H0,3A1,1X,2A1,1X,3A1,2X,21A1,2X,20A1,4X,2A1,1X,2A1,8X,6(2A   00040
     21,'/',2A1,3X))                                                   00050
C     TOTAL NO. OF PROJECTS REMOVED
      ICT1=ICT1+1                                                      00060
      IREC1=IREC1+1                                                    00065
      IF(IREC1-NWREC)201,201,990                                       00070
  201 LINCT=LINCT+1
      IF(LINCT-29)200,200,9010
 9010 IOFLO=1
      GO TO 901
  990 LR=1
      GO TO 214
C                           END OF JOB ROUTINE                         00100
   99 WRITE(NLP,8)ITCT
    8 FORMAT(1H1,'TOTAL PROJECTS REMOVED FOR REGION',I8)
C                   RE-PACK UNSELECTED MASTER FILE
      DO 900 I=1,IINCT
      READ(3'I)IDISK
      WRITE(1'I)IDISK
```

```
PAGE   4                SELECT RECORDS FOR YEAR-END GRANT SUMMARY

  900 CONTINUE
      WRITE(1'290)IIMCT
      WRITE(NLP,700)NMREC
  700 FORMAT(1H1,'NO. OF RECORDS MSTR FILE BEGINNING',I8)
      WRITE(NLP,701)INREC
  701 FORMAT(1H ,'NO. OF STATUS 6 RECORDS SELECTED ',I8)
      WRITE(NLP,702)IIMCT
  702 FORMAT(1H ,'NO. OF RECORDS REMAINING MSTR FILE',I7)
      WRITE(NLP,107)
  107 FORMAT(1H1,2X)
      STOP 9999                                                    00190
      END                                                          00200
VARIABLE ALLOCATIONS
 IDISK(I )=0085-001C IDATE(I )=008D-0086 ISAVE(I )=008F-008E     R(I )=0090      NMREC(I )=0091       NCR(I )=0092
   NLP(I )=0093         LL(I )=0096       NYRRC(I )=0095       NREC(I )=0096        I(I )=0097      IIMCT(I )=0098
 NWREC(I )=0099      INREC(I )=009A      IREC1(I )=009B     IOFLO(I )=009C      IPAGE(I )=009D     LINCT(I )=009E
  ICT1(I )=009F       ITCT(I )=00A0         LR(I )=00A1         J(I )=00A2         JJ(I )=00A3

STATEMENT ALLOCATIONS
 1    =00C9  2    =00CC  703  =00F4  3    =0122  100  =0153  101  =0178  102  =0188  103  =0199  104  =01AA  105  =01C6
 5    =01EE  106  =0203  6    =0224  700  =023A  701  =0250  702  =0266  107  =027C  10   =029E  12   =02AC  25   =02B4
 30   =02BE  31   =02CB  11   =02D7  220  =02E9  20   =02F6  35   =0301  40   =0329  50   =0337  501  =0366  200  =0393
 214  =03A2  215  =03C3  201  =045E  5010 =046A  990  =0470  99   =0476  500  =048D

FEATURES SUPPORTED
 ONE WORD INTEGERS
 EXTENDED PRECISION
 IOCS

CALLED SUBPROGRAMS
 DATSW   LSDMF   MOVE    NCOMP   ELD     ESTO    CARDZ   PRNTZ   SRED    SWRT    SCOMP   SFIO    SIOAI   SIOIA   SIOI
 SUBSC   STOP    PAUSE   SDFIO   SDRED   SDWRT   SDCOM   SDAI    SDI

INTEGER CONSTANTS
     1=00A8    250=00A9  24896=00AA   1111=00AB      5=00AC      2=00AD   3333=00AE   2496=00AF      3=00B0      4=00B1
    25=00B2   2222=00B3      6=00B4      0=00B5     53=00B6     55=00B7     58=00B8     62=00B9     63=00BA     69=00BB
    72=00BC     76=00BD     79=00BE     83=00BF     86=00C0     90=00C1     93=00C2     23=00C3   9999=00C4   4369=00C5
 13107=00C6   8738=00C7 -26215=00C8

CORE REQUIREMENTS FOR
 COMMON       0  VARIABLES    188  PROGRAM   1036

 END OF COMPILATION

// XEQ P4103    1

*FILES(1,F4101),(2,F4102)
```

Appendix II-c. Program Listing (P4102)

```
// JOB

LOG DRIVE   CART SPEC   CART AVAIL  PHY DRIVE
  0000        0005        0005        0000

V2 M07   ACTUAL  8K  CONFIG  8K

// FOR
*LIST ALL
*IOCS(CARD,1132 PRINTER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
** CONSTRUCTION GRANT-DAYS IN STATUS REPORT
```

```
      DIMENSION JULAN(366,2),ISSTA(2),MDISK(106),IDATE(8),ISDT          01010
     2E(6),MDPAC(11),MDPA2(10),MDUPC(22),MDUP2(20),IPROC(72),IDDTE(8),  01020
     3ICDTE(8),ICJUL(5),IDJUL(5),IRND(8)                                01030
      DATA NLP/3/,NCR/2/,LINCT/0/,IFIL1/0/,IFIL2/                       01050
     20/,IFIL3/0/,IFIL4/0/,IFIL5/0/,IFIL6/0/,IPAGE/0/                   01060
      DATA MDPAC/11*' '/                                                01070
      DEFINE FILE 7(250,106,U,K),1(250,80,U,K),2(250,80,U,K),3(250,80,U,  01080
     2K),4(250,80,U,K),5(250,80,U,K),6(250,80,U,K)                      01090
      ISTAD=-4092                                                       02010
      READ(7'250)NMREC                                                  02020
C                          READ IN TABLE OF JULIAN DATES              02030
C                          1ST RD AND CHECK DATE CARD                 02040
   10 READ(NCR,1)IDATE                                                  02050
    1 FORMAT(8A1)                                                       02060
      IF(IDATE(3)-24896)12,11,12                                        02070
   12 WRITE(NLP,2)                                                      02080
    2 FORMAT('1H1,'DATE CARD INCORRECT OR MISSING-CORRECT,PUSH START TO C  02090
     2ONTINUE'/////////)                                                02100
      PAUSE 1111                                                        02110
      GO TO 10                                                          02120
C                          SET UP TABLE OF JULIAN DATES               02130
   11 READ(NCR,301)((JULAN(I,1),I=1,40),(JULAN(I,1),I=42,366)           02140
  301 FORMAT(20I4)                                                      02150
C                                     FILL IN BLNK SPCE DUE TO ERROR IN  02160
C                                     INPUT TABLE                       02170
      JULAN(41,1)=0210                                                  02180
C     FILL IN JULIAN DATE ITSELF                                        02190
      DO 310 I=1,366                                                    02200
  310 JULAN(I,2)=I                                                      02210
C                          SELECT EACH STATUS FROM MASTER DISK FILE    02220
      DO 49 II=1,NMREC                                                  03010
      READ(7'II)MDISK                                                   03020
      IK=89                                                             03030
      DO 15 I=1,6                                                       03040
      IF(MDISK(IK)-16448)48,15,48                                       03050
C                          IF STATUS IS NOT BLANK,SELECT THE RECORD AND  03060
C                          WRITE ON APPROPRIATE FILE                   03070
   48 WDSK=GET(MDISK,IK,IK,1,0)                                         03080
      IWDSK=WDSK                                                        03090
      CALL PACK(MDISK,9,28,MDPAC,1)                                     03100
      CALL PACK(MDISK,30,49,MDPA2,1)                                    03110
      GO TO(30,99,98,97,96,95),IWDSK                                    03120
   15 IK=IK-7                                                           03130
C                 SYSTEMS ERROR- NO STATUS FOUND ON MASTER RECORD      03140
      STOP 1001                                                         03150
   30 IFIL1=IFIL1+1                                                     03160
      WRITE(IWDSK'IFIL1)MDISK(IK),(MDISK(J),J=1,8),MDPAC,MDPA2,(MDISK(J)  03170
     2,J=54,95)                                                         03180
      GO TO 49                                                          03190
   99 IFIL2=IFIL2+1                                                     03200
      WRITE(IWDSK'IFIL2)MDISK(IK),(MDISK(J),J=1,8),MDPAC,MDPA2,(MDISK(J)  06100
     2,J=54,95)                                                         06110
      GO TO 49                                                          06120
   98 IFIL3=IFIL3+1                                                     07030
      WRITE(IWDSK'IFIL3)MDISK(IK),(MDISK(J),J=1,8),MDPAC,MDPA2,(MDISK(J)
```

```
     2,J=54,95)
      GO TO 49
   97 IFIL4=IFIL4+1                                                    07140
      WRITE(IWDSK'IFIL4)MDISK(IK),(MDISK(J),J=1,8),MDPAC,MDPA2,(MDISK(J)
     2,J=54,95)
      GO TO 49
   96 IFIL5=IFIL5+1                                                    07230
      WRITE(IWDSK'IFIL5)MDISK(IK),(MDISK(J),J=1,8),MDPAC,MDPA2,(MDISK(J)
     2,J=54,95)
      GO TO 49
   95 IFIL6=IFIL6+1                                                    08090
      WRITE(IWDSK'IFIL6)MDISK(IK),(MDISK(J),J=1,8),MDPAC,MDPA2,(MDISK(J)
     2,J=54,95)
   49 CONTINUE                                                         03140
C                        END OF STATUS FILE SELECTION                  03150
C                        CALCULATE NO. OF DAYS IN STATUS FOR EACH RECORD 03160
      IF(IFIL1)4001,4001,4000
 4000 DO 70 L=1,IFIL1
      READ(1'L)IPROC
      CALL MOVE(IPROC,32,37,ISDTE,1)
      IND=1
      GO TO 75
C                      WRITE STATUS 1 RECORD                          06160
   70 WRITE(1'L)IPROC,NDAYS
C                      STATUS 2 FILE                                  06170
 4001 IF(IFIL2)4003,4003,4002
 4002 DO 71 L=1,IFIL2
      READ(2'L)IPROC
      CALL MOVE(IPROC,39,44,ISDTE,1)
      IND=2
      GO TO 75
   71 WRITE(2'L)IPROC,NDAYS
C                      STATUS 3 FILE                                  07040
 4003 IF(IFIL3)4005,4005,4004
 4004 DO 72 L=1,IFIL3
      READ(3'L)IPROC
      CALL MOVE(IPROC,46,51,ISDTE,1)
      IND=3
      GO TO 75
   72 WRITE(3'L)IPROC,NDAYS
C                      STATUS 4 FILE                                  07130
 4005 IF(IFIL4)4007,4007,4006
 4006 DO 73 L=1,IFIL4
      READ(4'L)IPROC
      CALL MOVE(IPROC,53,58,ISDTE,1)
      IND=4
      GO TO 75
   73 WRITE(4'L)IPROC,NDAYS
C                      STATUS  5 FILE                                 07220
 4007 IF(IFIL5)4009,4009,4008
 4008 DO 74 L=1,IFIL5
      READ(5'L)IPROC
      CALL MOVE(IPROC,60,65,ISDTE,1)
      IND=5
      GO TO 75
```

```
   74 WRITE(5'L)IPROC,NDAYS
C     STATUS  6 FILE                                                    08080
 4009 IF(IFIL6)4011,4011,4010
 4010 DO 750 L=1,IFIL6
      READ(6'L)IPROC
      CALL MOVE(IPROC,67,72,ISDTE,1)
      IND=6
      GO TO 75
  750 WRITE(6'L)IPROC,NDAYS
C                  END OF DAYS IN STATUS CALCULATION-SORT DISK FILES   08180
C                                                                      09050
C                                                                      09140
 4011 IRNO(1)=IFIL1                                                    09150
      IRNO(2)=IFIL2                                                    09160
      IRNO(3)=IFIL3                                                    09170
      IRNO(4)=IFIL4                                                    09180
      IRNO(5)=IFIL5                                                    09190
      IRNO(6)=IFIL6
      DO 4012 I=1,6
      IF(IRNO(I))4014,4014,4013
 4013 IFILE=IRNO(I)
      NFILE=I
      CALL LSDMF(NFILE,1,1,IFILE,1,4,5,2,2,3,7,3,73,1)
      GO TO 4015
 4014 WRITE(I'1)ISTAO
 4015 CONTINUE
 4012 CONTINUE
C                  END OF SORT PHASE                                   09120
C                  PREPARE TO PRINT REPORT                             09130
      DO 110 I=1,6                                                     09200
C                  RESET FILE NOS. AND RECORD COUNTERS                 09210
      IPFIL=I                                                          09220
      IAF=1                                                            09230
      READ(IPFIL'1)IPROC,NDAYS                                         10010
C                  SAVE 1ST RECORD STATE CODE                          10020
      CALL MOVE(IPROC,5,6,ISSTA,1)                                     10030
      ISTAT=IPROC(1)                                                   10040
      IF(ISTAT-4032)1120,110,1120                                      10049
 1120 IOFLO=2                                                          10059
C                  GO TO PAGE OVERFLOW RTNE                            10060
      GO TO 150                                                        10070
C                  MAIN DISK READ                                      10080
  112 READ(IPFIL'IAF)IPROC,NDAYS                                       10090
      IF(NCOMP(IPROC,5,6,ISSTA,1))191,125,191                          10100
C                  PROCESS ROUTINE 1ST UNPACK PROJ TITLE,COUNTY NAME   10110
  125 CALL UNPAC(IPROC,10,20,MDUPC,1)                                  10120
      CALL UNPAC(IPROC,21,30,MDUP2,1)
C                  WRITE THE DETAIL LINE                               10140
      WRITE(NLP,100)NDAYS,(IPROC(J),J=2,9),MDUPC,MDUP2,(IPROC(J),J=32,37 10150
     2)                                                                10160
  100 FORMAT(1H0,2X,I4,5X,3A1,1X,2A1,1X,3A1,3X,22A1,2X,20A1,6X,2A1,'/',2 10170
     2A1,'/',2A1)                                                      10180
      IAF=IAF+1                                                        10190
      IF(IAF-IRNO(I))201,201,110                                       10200
  201 LINCT=LINCT+1                                                    10210
      IF(LINCT-21)112,112,9010                                         10220
```

```
 9010 IOFLO=1                                                          11010
      GO TO 190                                                        11020
C                    ROUTINE FOR CONTROL BRK ON STATE                  11030
C                                                                      11040
  191 IF(LINCT)221,221,220                                             11050
  221 CALL MOVE(IPROC,5,6,ISSTA,1)                                     11060
      GO TO 125                                                        11070
  220 IOFLO=2                                                          11080
      CALL MOVE(IPROC,5,6,ISSTA,1)                                     11090
      GO TO 190                                                        11100
  110 CONTINUE                                                         11110
C                    END OF JOB RTNE                                   11120
      WRITE(NLP,107)                                                   11130
  107 FORMAT(1H1,2X)                                                   11140
      STOP 9999                                                        04020
C                                                                      04030
C                         SUBROUTINE TO CALCULATE DAYS ELAPSED         04040
C                                                                      04050
   79 CALL MOVE(ISDTE,1,2,IDDTE,3)                                     04060
      CALL MOVE(ISDTE,3,4,IDDTE,5)                                     04070
      CALL MOVE(ISDTE,5,6,IDDTE,1)                                     04080
C                         GET MONTH AND DAY FROM DISK STATUS AND CNVRT INT 04090
      SDTE=GET(IDDTE,3,6,1,0)                                          04100
      IIDTE=SDTE                                                       04110
C                         DO SAME FOR CURRENT DAY                      04120
      CALL MOVE(IDATE,1,2,ICDTE,3)                                     04130
      CALL MOVE(IDATE,4,5,ICDTE,5)                                     04140
      CALL MOVE(IDATE,7,8,ICDTE,1)                                     04150
      CDTE=GET(ICDTE,3,6,1,0)                                          04160
      IICTE=CDTE                                                       04170
C                         LOOK UP JULIAN DATE FOR CURRENT MO/DAY       04180
      DO 92 I=1,366                                                    04190
      IF(IICTE-JULAN(I,1))33,34,92                                     04200
   33 STOP 2222                                                        04210
C           SYSTEM ERROR-JULIAN DATE NOT FOUND                         05010
   34 CJUL=JULAN(I,2)                                                  05020
      GO TO 36                                                         05030
   92 CONTINUE                                                         05040
      STOP 2223                                                        05050
C     JULIAN DATE HIGHER THAN ANYTHING IN TABLE-ERROR                  05060
C                                                                      05070
C                    LOOK UP JULIAN DATE FOR STATUS MO/DAY             05080
   36 DO 41 I=1,366                                                    05090
      IF(IIDTE-JULAN(I,1))43,42,41                                     05100
   43 STOP 2224                                                        05110
   42 DJUL=JULAN(I,2)                                                  05120
      GO TO 96                                                         05130
   41 CONTINUE                                                         05140
      STOP 2225                                                        05150
C                    CALCULATE NO. OF DAYS ELAPSED-PREP DTES FOR SUBTRACTN 05160
   96 CALL PUT(ICJUL,3,5,CJUL,,5,0)                                    05170
      CALL MOVE(ICDTE,1,2,ICJUL,1)                                     05180
      CALL PUT(IDJUL,3,5,DJUL,,5,0)                                    05190
      CALL MOVE(IDDTE,1,2,IDJUL,1)                                     05200
      IF(GET(ICJUL,1,2,1,0)-GET(IDJUL,1,2,1,0))61,62,63                05210
   61 STOP 3333
```

```
C     ERROR STATUS DATE YR HIGHER THAN CURRENT DATE                          09220
C     CALC DAYS IF YEARS ARE EQUAL                                           06010
   62 NDAYS=GET(ICJUL,1,5,1,0)-GET(IDJUL,1,5,1,0)+1,
      IF(NDAYS)51,52,52                                                      06030
   51 STOP 3331                                                              06040
C                    CURRENT DATE YR HIGHER THAN STATUS DATE                06050
   63 IF((GET(ICJUL,1,2,1,0)-GET(IDJUL,1,2,1,0))-1,)630,630,640
C                  CURR. DATE IS MORE THAN 1 YR HIGHER THAN STATUS DATE     06070
C                  THIS IS NOT PROGRAMMED FOR                               06080
  640 STOP 4444                                                             06090
C              CALC NO. OF DAYS IN STATUS IF YEAR IS DIFFERENT              06100
  630 NDAYS=366,-GET(IDJUL,3,5,1,0)+GET(ICJUL,3,5,1,0)+1,
C                  EXIT FROM DAYS ELAPSED CALC. SUBROUTINE                  06120
   52 GO TO(70,71,72,73,74,750),IND                                         06130
C                  PAGE OVERFLOW RTNE                                       11150
  150 IPAGE=IPAGE+1                                                         11160
      LINCT=0                                                               11170
      WRITE(NLP,400)IPAGE                                                   11180
  400 FORMAT(1H1,46X,'CASE STATUS REPORT-MANAGEMENT INFORMATION SYSTEM',    11190
     217X,'PAGE',I4/)                                                       11200
      WRITE(NLP,401)IDATE                                                   11210
  401 FORMAT(1H ,52X,'CURRENT REPORT DATE ',8A1//)                          12010
      WRITE(NLP,402)ISTAT                                                   12020
  402 FORMAT(1H ,52X,'PROJECT STATUS NUMBER ',1A1//)                        12030
      WRITE(NLP,403)                                                        12040
  403 FORMAT(1H ,2X,'DAYS IN',4X,'PROJECT',11X,'PROJECT',19X,'COUNTY',12    12050
     2X,'DATE PROJECT',18X,'REMARKS-WORK ORDERS')                           12060
      WRITE(NLP,404)                                                        12070
  404 FORMAT(1H ,2X,'STATUS',5X,'NUMBER',13X,'TITLE',17X,'NAME',15X,'REC    12080
     2EIVED',20X,'TO PROJECT STAFF'/)                                       12090
      GO TO(112,125),IOFLO                                                  12100
      END                                                                   12110
```

VARIABLE ALLOCATIONS

WDSK(R)	=0031	SDTE(R)	=0034	CDTE(R)	=0037	CJUL(R)	=003A	DJUL(R)	=003D	JULAN(I)	=031E-0043						
ISSTA(I)	=0320-031F	MDISK(I)	=038A-0321	IDATE(I)	=0392-038B	ISDTE(I)	=0398-0393	MDPAC(I)	=03A3-0399	MDPA2(I)	=03AD-03A4						
MDUPC(I)	=03C3-03AE	MDUP2(I)	=03D7-03C4	IPROC(I)	=041F-03D8	IDDTE(I)	=0425-0420	ICDTE(I)	=042B-0426	ICJUL(I)	=0430-042C						
IDJUL(I)	=0435-0431	IRNO(I)	=043B-0436	K(I)	=043C	ISTAO(I)	=043D	NMREC(I)	=043E	NCR(I)	=043F						
NLP(I)	=0440	I(I)	=0441	II(I)	=0442	IK(I)	=0443	IWDSK(I)	=0444	IFIL1(I)	=0445						
J(I)	=0446	IFIL2(I)	=0447	IFIL3(I)	=0448	IFIL4(I)	=0449	IFIL5(I)	=044A	IFIL6(I)	=044B						
L(I)	=044C	IND(I)	=044D	NDAYS(I)	=044E	IFILE(I)	=044F	NFILE(I)	=0450	IPFIL(I)	=0451						
IAF(I)	=0452	ISTAT(I)	=0453	IOFLO(I)	=0454	LINCT(I)	=0455	IIDTE(I)	=0456	IICTE(I)	=0457						
IPAGE(I)	=0458																

STATEMENT ALLOCATIONS

1	=04A5	2	=04A8	301	=04D2	100	=04D5	107	=04F4	400	=04F8	401	=0518	402	=052E	403	=0541	404	=056F
10	=05B9	12	=05C7	11	=05CF	310	=0602	48	=0631	15	=0656	30	=0667	99	=06A6	98	=06E5	97	=0724
96	=0763	95	=07A2	49	=07DF	4000	=07EC	70	=0803	4001	=0815	4002	=0819	71	=0830	4003	=0842	4004	=0846
72	=085D	4005	=086F	4006	=0873	73	=088A	4007	=089C	4008	=08A0	74	=08B7	4009	=08C9	4010	=08CD	750	=08E4
4011	=08F6	4013	=0927	4014	=0946	4015	=094C	4012	=094C	1120	=097C	112	=0982	125	=0993	201	=09E4	5010	=09F0
151	=09F6	221	=09FA	220	=0A03	110	=0A10	75	=0A1F	33	=0A74	34	=0A76	32	=0A82	36	=0A8D	43	=0A9E
42	=0AA0	41	=0AAC	56	=0AB7	61	=0AEA	62	=0AEC	51	=0B05	63	=0B07	640	=0B1C	630	=0B1E	52	=0B35
150	=0B3F																

FEATURES SUPPORTED
ONE WORD INTEGERS

```
 EXTENDED PRECISION
 IOCS

CALLED SUBPROGRAMS
 GET     PACK    MOVE    LSDMF   NCOMP   UNPAC   PUT     ESUB    ELD     ESTO    ESBR    IFIX    FLOAT   CARDZ   PRNTZ
 SRED    SWRT    SCOMP   SFIO    SIOAI   SIOIX   SIOI    SUBSC   STOP    PAUSE   SDFIO   SDRED   SDWRT   SDCOM   SDAI
 SDIX    SDI

REAL CONSTANTS
   .100000000E 01=0460     .500000000E 00=0463     .366000000E 03=0466

INTEGER CONSTANTS
  4032=0469       7=046A     250=046B   24896=046C    1111=046D       1=046E      40=046F      42=0470     366=0471     210=0472
    89=0473       6=0474   16448=0475       9=0476      28=0477      30=0478      49=0479    1001=047A       8=047B      54=047C
    95=047D      32=047E      37=047F       2=0480      39=0481      44=0482       3=0483      46=0484      51=0485       4=0486
    53=0487      58=0488       5=0489      60=048A      65=048B      67=048C      72=048D      73=048E      10=048F      20=0490
    21=0491    9999=0492    2222=0493    2223=0494    2224=0495    2225=0496       0=0497    3333=0498    3331=0499    4444=049A
  4369=049B    4097=049C  -26215=049D    8738=049E    8739=049F    8740=04A0    8741=04A1   13107=04A2   13105=04A3   17476=04A4

CORE REQUIREMENTS FOR
 COMMON       0  VARIABLES    1120  PROGRAM    1802

 END OF COMPILATION

// XEQ P4102    1

*FILES(7,F4101)
```

Appendix II-d. Program Listing (P4105)

```
PAGE   1

// JOB

LOG DRIVE   CART SPEC   CART AVAIL  PHY DRIVE
  0000        0005        0005        0000

V2 M07   ACTUAL  8K  CONFIG  8K

// FOR
*IOCS(1132 PRINTER,DISK,CARD)
** PRINT TIME HISTORY REPORT
*EXTENDED PRECISION
*ONE WORD INTEGERS
*LIST ALL
```

```
      DIMENSION IDDTE(6),IDATE(8)                                          01010
      DATA NCR/2/,NLP/3/                                                   01020
      DEFINE FILE 1(27,12,U,K)                                             01030
      READ(1'27)NREC
C                  READ AND CHECK DATE CD                                  01050
   10 READ(NCR,1)IDATE                                                     01060
    1 FORMAT(8A1)                                                          01070
      IF(IDATE(3)-24896)12,11,12                                           01080
   12 WRITE(NLP,2)                                                         01090
    2 FORMAT(1H1,'DATE CD IS INCORRECT OR MISSING-CORRECT,PRESS START TO   01100
     2CONTINUE'//////////)                                                 01110
      PAUSE 1111                                                           01120
      GO TO 10                                                             01130
C                  PAGE HEADINGS                                           02010
   11 WRITE(NLP,3)IDATE                                                    02020
    3 FORMAT(1H1,36X,'CASE STATUS REPORT MANAGEMENT INFORMATION SYSTEM',    02030
     213X,8A1)                                                             02040
      WRITE(NLP,4)                                                         02050
    4 FORMAT(1H ,42X,'TIME HISTORY FOR SERVICE MECHANISM'//)                02060
      WRITE(NLP,5)                                                         02070
    5 FORMAT(1H ,13X,'WEEK',14X,'REPORT DATE',11X,'PROJECTS IN',12X,'FIN   02080
     2AL APPROVALS OUT')                                                   02090
C                  READ AND PRINT TIME HISTORY FILE                        03010
      DO 25 I=1,NREC                                                       03020
      READ(1'I)IDDTE,IRCIN,IROUT                                           03030
      WRITE(NLP,6)I,IDDTE,IRCIN,IROUT                                      03040
    6 FORMAT(1H0,14X,I2,17X,2A1,'/',2A1,'/',2A1,15X,I3,26X,I3)             03050
   25 CONTINUE                                                             03060
      WRITE(NLP,7)                                                         03070
    7 FORMAT(1H1,2X)                                                       03080
      STOP 9999                                                            03090
      END                                                                  03100
VARIABLE ALLOCATIONS
 IDDTE(I )=000C-0007 IDATE(I )=0014-000D     K(I )=0015       NREC(I )=0016       NCR(I )=0017       NLP(I )=0018
     I(I )=0019      IRCIN(I )=001A      IROUT(I )=001B

STATEMENT ALLOCATIONS
 1    =0025  2    =0028  3    =0055  4    =0075  5    =008D  6    =00D0  7    =00C4  10   =00E6  12   =00F4  11   =00FC
 25   =0126

FEATURES SUPPORTED
 ONE WORD INTEGERS
 EXTENDED PRECISION
 IOCS

CALLED SUBPROGRAMS
 ELD     ESTO    CARDZ   PRNTZ   SRED    SWRT    SCOMP   SFIO    SIOAI   SIOI    STOP    PAUSE   SDFIO   SDRED   SDAI
 SDI

INTEGER CONSTANTS
     1=001E     27=001F  24896=0020   1111=0021   9999=0022   4369=0023 -26215=0024

CORE REQUIREMENTS FOR
 COMMON       0  VARIABLES     30  PROGRAM    280
```

```
 END OF COMPILATION
// XEQ P4105   01
*FILES(1,F4103)
```

Appendix II-e. Program Listing (P4104)

```
PAGE   1

// JOB

LOG DRIVE   CART SPEC   CART AVAIL  PHY DRIVE
  0000        0005        0005        0000

V2 M07   ACTUAL  8K  CONFIG  8K

// FOR
** MAINTENANCE PROGRAM FOR GRANT MASTER FILE
*LIST ALL
*IOCS(1132 PRINTER,CARD,DISK,TYPEWRITER)
*EXTENDED PRECISION
*ONE WORD INTEGERS
```

96

```
      DIMENSION MDISK(106),IWDSK(80),IDATE(8),IBLNK(21),MSDSK(106)          01010
      DATA NCR/2/,NLP/3/,ISW/0/,NRDEL/0/,IDIND/0/,IWORK/0/,IBLN              01020
     2K/21*' '/,IND/0/                                                      01030
      DEFINE FILE 1(250,106,U,K),2(100,80,U,K)                              01040
      READ(1'250)NREC                                                       01050
      NBREC=NREC
   10 READ(NCR,1)IDATE                                                      01060
    1 FORMAT(8A1)                                                           01070
      IF(IDATE(3)-24896)12,11,12                                            01080
   12 WRITE(NLP,2000)                                                       01090
 2000 FORMAT(1H1,'DATE CD INCORRECT OR MISSING-CORRECT,PUSH START TO CON    01100
     2TINUE'///////)                                                        01110
      PAUSE 1111                                                            01120
      GO TO 10                                                              01130
   11 WRITE(NLP,2)IDATE                                                     02010
    2 FORMAT(1H1,53X,'FILE MAINTENANCE',14X,8A1)                            02020
C                   READ DETAIL CARD,TEST FOR CHANGE OR DELETION            02030
  140 READ(NCR,3)IWDSK                                                      02040
    3 FORMAT(80A1)                                                          02050
      IF(IWDSK(80)+15552)41,42,41                                           02060
   41 IF(IWDSK(80)+15296)43,44,43                                           02070
   43 CALL STACK                                                            02080
      GO TO 140                                                             02090
   42 WRITE(NLP,4)                                                          02100
    4 FORMAT(1H0,20X,'OLD DATA',61X,'NEW DATA'/)                            02110
      GO TO 20                                                              02120
   44 WRITE(NLP,5)                                                          02130
    5 FORMAT(1H0,53X,'PROJECTS DELETED'/)                                   02140
      GO TO 20                                                              02150
   14 READ(NCR,3)IWDSK                                                      02160
      IF(IWDSK(80)+6336)20,99,20                                            02170
   20 IF(IWDSK(80)+15296)70,25,70                                           02180
   70 IF(IWDSK(80)+15552)75,26,75                                           02200
   75 CALL STACK                                                            02200
      GO TO 14                                                              02210
C                   DETAIL CARD IS A CHANGE                                 02220
   26 IWORK=IWORK+1                                                         02230
      WRITE(2'IWORK)IWDSK                                                   03010
      GO TO 14                                                              03020
C                   END OF INPUT READ IN                                    03030
   99 IF(IDIND)990,990,50                                                   03040
C                   SORT WORK FILE ON PROJECT NUMBER                        03050
  990 CALL LSDMF(2,1,1,IWORK,1,1,1,8)                                       03060
C                   BEGIN MAINTENANCE UPDATE                                03070
      IM=0                                                                  03080
      DO 101 I=1,8                                                          03090
  101 MDISK(I)=-16064                                                       03100
      DO 100 II=1,IWORK                                                     03110
      READ(2'II)IWDSK                                                       03120
      GO TO 54                                                              03130
C                   READ MASTER FILE                                        03140
   56 READ(1'IM)MDISK                                                       03150
   54 IF(NCOMP(IWDSK,1,8,MDISK,1))55,60,560                                 03160
  560 IM=IM+1                                                               03170
      IF(IM-NREC)56,56,80                                                   03180
```

```
C                    END OF MASTER FILE-FILL MSTR CTL FIELD WITH HIGHEST      03190
                                                                              03200
   80 CALL FILL(MDISK,1,8,32320)                                              03210
      GO TO 54                                                                04010
C     CHANGE CARD NOT FOUND ON FILE-ERROR MSG ON CONSOLE                      04020
   55 WRITE(1,6)IWDSK                                                         04030
    6 FORMAT(1H ,'CHANGE CARD DOES NOT MATCH FILE',3X,80A1)                   04040
      GO TO 100                                                               04050
C                    CHANGE CARD EQUAL TO FILE-PROCESS ROUTINES               04060
C                    1ST-PROJECT DESCRIPTION                                  04065
   60 CALL MOVE(MDISK,1,80,MSDSK,1)                                           04070
      IF(IWDSK(9)-16448)90,61,90                                              04080
   90 IF(IWDSK(9)-23360)62,63,62                                              04090
   62 CALL MOVE(IWDSK,9,29,MDISK,9)                                           04100
      GO TO 610                                                               04110
   63 CALL MOVE(IBLNK,1,21,MDISK,9)                                           04120
  610 IND=1                                                                   04130
C                    PROCESS COUNTY NAME                                      04140
   61 IF(IWDSK(30)-16448)91,64,91                                             04150
   91 IF(IWDSK(30)-23360)202,203,202                                          04160
  202 CALL MOVE(IWDSK,30,49,MDISK,30)                                         04170
      GO TO 640                                                               04180
  203 CALL MOVE(IBLNK,1,20,MDISK,30)                                          04190
  640 IND=1                                                                   04200
C                    PROCESS MAJOR BASIN                                      04210
   64 IF(IWDSK(76)-16448)92,66,92                                             04220
   92 IF(IWDSK(76)-23360)204,205,204                                          05010
  204 CALL MOVE(IWDSK,76,77,MDISK,50)                                         05020
      GO TO 660                                                               05030
  205 CALL MOVE(IBLNK,1,2,MDISK,50)                                           05040
  660 IND=1                                                                   05050
C                    PROCESS MINOR BASIN                                      05060
   66 IF(IWDSK(78)-16448)93,67,93                                             05070
   93 IF(IWDSK(78)-23360)206,207,206                                          05080
  206 CALL MOVE(IWDSK,78,79,MDISK,52)                                         05090
      GO TO 670                                                               05100
  207 CALL MOVE(IBLNK,1,2,MDISK,52)                                           05110
  670 IND=1                                                                   05120
C                    RTNE TO CHANGE DATE OF STATUS 1(DATE RECEIVED)           05130
   67 IF(IWDSK(50)-16448)94,68,94                                             05140
   94 IF(IWDSK(50)-23360)208,209,208                                          05150
  208 CALL MOVE(IWDSK,50,55,MDISK,55)                                         05160
      GO TO 680                                                               05170
  209 CALL MOVE(IBLNK,1,6,MDISK,55)                                           05180
  680 IND=1                                                                   05190
C                    TEST TO SEE IF ANY ACTION OCCURRED ON CHANGE             05200
   68 IF(IND)300,300,301                                                      05210
  300 WRITE(1,7)IWDSK                                                         05220
    7 FORMAT(1H ,'CHANGE CD WITH NO CHANGES INDICATED',2X,80A1)               06010
      GO TO 100                                                               06020
C                    TURN INDICATOR OFF-WRITE NEW AND OLD DATA LINES          06030
  301 IND=0                                                                   06040
      WRITE(NLP,8)(MSDSK(I),I=1,49),(MDISK(I),I=1,49)                         06050
    8 FORMAT(1H ,8A1,1X,21A1,1X,20A1,17X,8A1,1X,21A1,1X,20A1)                 06060
      WRITE(NLP,9)(MSDSK(I),I=55,60),(MSDSK(I),I=50,53),(MDISK(I),I=55,6
     20),(MDISK(I),I=50,53)
```

```
    9 FORMAT(1H ,6X,6A1,6X,2A1,2X,2A1,51X,6A1,6X,2A1,2X,2A1/)                06070
C                   WRITE UPDATED RECORD BACK ON DISK                       06080
      WRITE(1'IM)MDISK                                                      06090
C                   END OF LOOP-GO BACK TO READ NEXT INPUT RECORD           06100
  100 CONTINUE                                                              06110
      GO TO 50                                                              06120
C                                                                           06130
C                   ROUTINES TO DELETE A RECORD                             06140
C                                                                           06150
   25 IDIND=1
      IDREC=0                                                               06170
      ISW=0
      WRITE(NLP,405)(IWDSK(I),I=1,8)                                        07035
  405 FORMAT(1H0,56X,3A1,1X,2A1,1X,3A1)                                     07037
  410 IDREC=IDREC+1                                                         06180
      IF(IDREC-NREC)412,422,422                                             06190
  412 IF(ISW)414,414,425                                                    06200
  414 READ(1'IDREC)MDISK                                                    06210
      IF(NCOMP(IWDSK,1,8,MDISK,1))430,425,420                               06220
  420 WRITE(1'IDREC)MDISK                                                   07010
      GO TO 410                                                             07020
  425 IOUT=IDREC+1                                                          07030
      READ(1'IOUT)MDISK                                                     07040
      ISW=ISW+1                                                             07050
      GO TO 420                                                             07060
  422 IF(ISW)415,415,423                                                    07070
  415 READ(1'IDREC)MDISK
      IF(NCOMP(IWDSK,1,8,MDISK,1))413,423,430                               07081
  413 PAUSE 1001                                                            07080
C                   THIS PAUSE MEANS A PROGRAM ERROR HAS OCCURRED           07090
C                                                                           07100
  423 NREC=NREC-1                                                           07110
      NRDEL=NRDEL+1                                                         07120
      GO TO 14                                                              07130
  430 WRITE(1,406)IWDSK                                                     07141
  406 FORMAT(1H ,'DELETION NOT FOUND ON FILE',5X,80A1)                      07143
      GO TO 14                                                              07144
C  END OF JOB ROUTINE                                                       07140
   50 WRITE(1'250)NREC                                                      07150
      WRITE(NLP,400)NBREC                                                   07160
  400 FORMAT(1H1,'NO. OF RECORDS ON FILE BEGINNING-',I6)                    07170
      WRITE(NLP,401)NRDEL                                                   07180
  401 FORMAT(1H ,'NO. OF RECORDS DELETED -          ',I6)                   07190
      WRITE(NLP,402)NREC                                                    07200
  402 FORMAT(1H ,'NO. OF RECORDS ON FILE ENDING -  ',I6)                    07210
      WRITE(NLP,403)                                                        08010
  403 FORMAT(1H1,2X)                                                        08020
      STOP 9999                                                             08030
      END                                                                   08040
VARIABLE ALLOCATIONS
 MDISK(I )=0077-000E IWDSK(I )=00C7-0078 IDATE(I )=00CF-00C8 IBLNK(I )=00E4-00D0 MSDSK(I )=014E-00E5      K(I )=014F
  NREC(I )=0150      NBREC(I )=0151        NCR(I )=0152        NLP(I )=0153      IWORK(I )=0154      IDIND(I )=0155
    IM(I )=0156          I(I )=0157         II(I )=0158        IND(I )=0159      IDREC(I )=015A        ISW(I )=015B
  IOUT(I )=015C      NRDEL(I )=015D
```

```
STATEMENT ALLOCATIONS
 1    =0184  2000 =0187  2    =01B0  3    =01C0  4    =01C3  5    =01D3  6    =01E1  7    =01F8  8    =0211  9    =0225
 405  =023B  406  =0247  400  =025B  401  =0271  402  =0287  403  =029D  10   =02C3  12   =02D1  11   =02D9  140  =02E0
 41   =02EE  43   =02F6  42   =02FA  44   =0300  14   =0306  20   =0314  70   =031C  75   =0324  26   =0328  99   =0337
 990  =033B  101  =034D  56   =036C  54   =0372  560  =037D  80   =0389  55   =0391  60   =039A  90   =03A9  62   =03B1
 63   =03BA  610  =03C1  61   =03C5  91   =03CD  202  =03D5  203  =03DE  640  =03E5  64   =03E9  92   =03F1  204  =03F9
 205  =0402  660  =0409  66   =040D  93   =0415  206  =041D  207  =0426  670  =042D  67   =0431  94   =0439  208  =0441
 209  =044A  680  =0451  68   =0455  300  =0459  301  =0462  100  =04E7  25   =04F2  410  =0515  412  =0521  414  =0525
 420  =0536  425  =053F  422  =0553  415  =0557  413  =0568  423  =056A  430  =0578  50   =0581

FEATURES SUPPORTED
 ONE WORD INTEGERS
 EXTENDED PRECISION
 IOCS

CALLED SUBPROGRAMS
 STACK   LSDMF   NCOMP   FILL    MOVE    ELD     ESTO    WRTYZ   CARDZ   PRNTZ   SRED    SWRT    SCOMP   SFIO    SIOAI
 SIOIX   SIOI    SUBSC   STOP    PAUSE   SDFIO   SDRED   SDWRT   SDCOM   SDAI    SDI

INTEGER CONSTANTS
     1=0160    250=0161  24896=0162   1111=0163  15552=0164  15296=0165   6336=0166      2=0167      8=0168      0=0169
 16064=016A  32320=016B     80=016C  16448=016D  23360=016E      9=016F     29=0170     21=0171     30=0172     49=0173
    20=0174     76=0175     77=0176     50=0177     78=0178     79=0179     52=017A     55=017B      6=017C     60=017D
    53=017E   1001=017F   9999=0180   4369=0181   4097=0182 -26215=0183

CORE REQUIREMENTS FOR
 COMMON       0  VARIABLES     352  PROGRAM    1088

 END OF COMPILATION

// XEQ          1

*FILES(1,F4101)
```